

SAF-RC-138

300 Area Sanitary Sewer Sampling –

Biannual Constituents

FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

No Distribution Required

COMMENTS:

SDG K3963

SAF-RC-138

Rad only

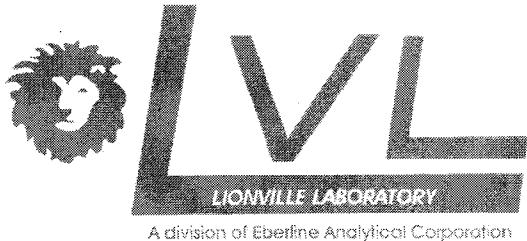
Chem only

Rad & Chem

Complete

Partial

**Sample Location/Waste Site: 300 Area Sanitary Sewer –
Semi Annual**



264 Welsh Pool Road
Exton, Pennsylvania 19341
Phone (610) 280-3000
Fax (610) 280-3041

16 August 2012

Joan Kessner
WC-Hanford, Inc.
2620 Fermi Avenue
MSIN H4-21
Richland, WA 99354

Subject: Analytical Data Package

Dear Ms. Kessner:

Enclosed are the hard copy analytical reports for the batch number/fraction indicated (marked X) in the following table:

LvLI Batch #	1208013
SDG #	K3963
SAF #	RC-138
Date Received	08/03/12
# Samples	4
Matrix	WATER
Volatiles	X
Semivolatiles	X
Pest/PCB	X
Glycols	
DRO/KRO/GRO	
PAHs	
Herbicides	
Metals	X
Inorganics	X

The electronic data deliverable (EDD) has been emailed. If you have any questions, please don't hesitate to contact me at (610) 280-3012.

Sincerely,

Lionville Laboratory
A Division of Eberline Analytical Corporation

Orlette S. Johnson
Project Manager

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of *76* pages.

CHAIN OF CUSTODY

00000002

1208 013

Custody Transfer Record/Lab Work Request

Page 1 of 1

Lionville Laboratory



FIELD PERSONNEL: COMPLETE ONLY SHADDED AREAS

 A-D
 EXCH T/T

K

A Division of Eberline Analytical Corporation

Client	Lionville Laboratory	Sample #	BC-138
Est. Final Proj. Sampling Date			
Project#			
Project Contact/Phone#			
Lionville Laboratory Project Manager	<u>J.W.</u>	O. Johnstone	
QC	<u>J.W.</u>	Det.	TAT
		21 Days	

Date Rec'd 8.3.12 **Date Due** 8.24.12
ANALYSES REQUESTED →

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓)	Matrix	Date Collected	Time Collected
			MS	MSD		
W/Water	01	✓ PWW - A	✓		8.1.12	08:55 X X X
WW/Waste Water	02	- B				X
GW/Groundwater	13	- C				X
WST/Waste	04	- D				X

Lionville Laboratory Use Only

↑

Refrigerator #	None	1	1	1	1	1	1	1	1	1	1
#/Type Container	Liquid	AG	440-246-					IP	BP		AG
	Solid										
Liquid	40	300	400					6	300		400
Solid											
Volume	HPL	—									
Preservatives											

 2007
 245.1
 Phosphates

 1422
 1422
 1422

Relinquished by	Received by	Date	Time
<u>K.D.P.</u>	<u>Kathy</u>	<u>8/3/12</u>	<u>10:00 AM</u>

Special Instructions:	1.
	2.
	3.
	4.
	5.
	6.

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time

0000000003

Washington Closure Hanford		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-138-035	Page 1 of 1						
Collector Craig Edmundson	Project Designation 300 Area Sanitary Sewer Sampling - Biannual Constituents	Company Contact Tom Edmundson	Telephone No. 509.947.5192	Project Coordinator KESSNER, JH	Price Code 7L Data Turnaround 21 Days						
Ice Chest No. RCC-08-027	Sampling Location 300 Area Sanitary Sewer Semi-Annual	Field Logbook No. EL 1518-26	COA RD4MXX2F00	SAF No. RC-138	Method of Shipment FedEx						
Shipped To Lionville Laboratory Incorporated	Offsite Property No. A11D479	Bill of Lading/Air Bill No. SEE OSPC									
POSSIBLE SAMPLE HAZARDS/REMARKS <i>pH < 2</i>											
Special Handling and/or Storage <i>Temp < 4 degrees C</i>		Preservation	HNO3 to pH < 2	HNO3 to pH < 2	HCl to pH < 2	Cool 4C	H2SO4 to pH < 2	Cool 4C	Cool 4C	Cool 4C	Cool 4C
		Type of Container	P/G	P/G	G*	aG	aG	aG	P/G	P/G	P/G
		No. of Container(s)	1	2	12	4	1	2	1	1	1
		Volume	1L	500mL	40mL	500mL	1000mL	1000mL	500mL	1L	
SAMPLE ANALYSIS		See item (1) in Special Instructions.	Mercury - 245.1 (CV) [Mercury]	See item (2) in Special Instructions.	See item (3) in Special Instructions.	Phenolics Total Recoverable - 420.4 [Total Phenolics]	See item (4) in Special Instructions.	TSS 2540P [Total suspended solids]	Biochemical Oxygen Demand (BOD) - 5210 [Biochemical Oxygen Demand]		
Sample No.	Matrix *	Sample Date	Sample Time								
J1PWW0	WATER	8-1-12	0815	✓	✓	✓	✓	✓	✓	✓	
CHAIN OF POSSESSION											
Relinquished By/Removed From Craig Edmundson 8-8-30		Received By/Stored In Sgt Sexton 8-11-12		Date/Time 8/11/12		Date/Time 08-30		SPECIAL INSTRUCTIONS		Matrix *	
Relinquished By/Removed From Sgt Sexton 8-11-12		Received By/Stored In A. Freier A. Freier 10/20/12		Date/Time 10/20/12		Date/Time 08/11/12		(1) Metals & Trace Elements by ICP - 200.7 (Antimony, Arsenic, Beryllium, Cadmium, Chromium, Copper, Lead, Molybdenum, Nickel, Selenium, Silver, Thallium, Zinc) (2) Pugetbiles - 624 (1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloroethene, 1,1-Dichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1,2-Dichloropropane, 2-Chloroethyl vinyl ether, Acrolein, Acrylonitrile, Benzene, Bromodichloromethane, Bromoform, Bromomethane, Carbon tetrachloride, Chlorobenzene, Chloroethane, Chloroform, Chloromethane, cis-1,3-Dichloropropene, Dichlorochloromethane, Ethylbenzene, Methylenetetraoxide, Tetrachloroethene, Toluene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene, Trichloroethane, Vinyl chloride) (3) Base/Neutrals and Acids - 625 (1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 1,2-Diphenylhydrazine, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 2,4,6-Trichlorophenol, 2,4-Dichlorophenol, 2,4-Dinitrophenol, 2,4-Dinitrotoluene, 2,6-Dinitrotoluene, 2-Chlorophenol, 2-Nitrophenol, 3,3-Dichloropropenidine, 4,6-Dinitro-2-methylphenol, 4-Bromophenyl ether, 4-Chloro-3-methylphenol, 4-Chlorophenylphenyl ether, 4-Nitrophenol, Acenaphthene, Acenaphthyrene, Anthracene, Benzidine, Benzo(a)anthracene, Benzo(a)pyrene,		S=Soil SE=Sludge SO=Solid W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue W=Wire L=Liquid V=Vegetation X=Other	
Relinquished By/Removed From A. Freier A. Freier 8-2-12 0940		Received By/Stored In Fed Ex 8-2-12 1420		Date/Time 8-2-12 0940		Date/Time 8-2-12 1420					
Relinquished By/Removed From Fed Ex 8-3-12 1000		Received By/Stored In WTR Kemmer 8-3-12 1000		Date/Time 8-3-12 1000		Date/Time 8-3-12 1000					
Relinquished By/Removed From WTR Kemmer 8-3-12 1000		Received By/Stored In REVIEWED BY 8-3-12 1000		Date/Time 8-3-12 1000		Date/Time 8-3-12 1000					
LABORATORY SECTION		Received By ST 8-3-12		Date/Time 8-3-12		Title DATE 8-3-12		Disposed By		Date/Time	
FINAL SAMPLE DISPOSITION		Disposal Method									

0000000004

Lionville Laboratory
SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: *WC Hanford*
Project SAF/SOW/Release #: *LC-138*

Date: *8/3/12*

LvL Batch #: *1208 013*

Sample Custodian: *Vicki J.*

NOTE: EXPLAIN ALL DISCREPANcies

1. Samples Hand Delivered or Shipped?	Carrier <i>FedEx</i>	Airbill # <i>793860632554</i>	
2. Custody Seals on coolers or shipping containers intact, signed & dated?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> No Seals
3. Outside of coolers or shipping containers are free from damage?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Comments:
4. All expected paperwork received (coc & other client specific information) sealed in plastic bag and easily accessible?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
5. Samples received cooled or ambient?	Temp <i>2</i> °C	Cooler # <i>WC4-11-011</i>	
How was the temperature taken?	<input checked="" type="checkbox"/> IR	<input type="checkbox"/> Temp. Blank	<input type="checkbox"/> Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
6. Custody seals on sample containers intact, signed and dated?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> No Seals
7. COC (Client & LvL) signed & dated?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
8. Sample containers are intact?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
9. All samples on COC received? All samples received on COC?	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> No	
10. All sample label information matches COC?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
11. Samples properly preserved? (If #5 is no, then this is no.)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
12. Samples received within hold times? Short holds taken to wet lab?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
13. VOA, TOC, TOX free of headspace?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
14. QC stickers placed on bottles designated by client?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
15. Shipment meets LvL Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
16. Project Manager contacted concerning any discrepancies? Person Contacted _____	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
	Date _____		

VOLATILES

00000006



264 Welsh Pool Road
Exton, PA 19341
Phone: 610-280-3000
Fax: 610-280-3041

WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-138
Project Number: K3963
Project Manager: Joan Kessner

Reported:
08/15/2012 14:03

Analytical Report for Purgeable Organic Compounds by EPA 624

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1PWW0-A	1208013-01	Water	08/01/2012 08:15	08/03/2012 10:00
J1PWW0-B	1208013-02	Water	08/01/2012 08:15	08/03/2012 10:00
J1PWW0-C	1208013-03	Water	08/01/2012 08:15	08/03/2012 10:00
J1PWW0-D	1208013-04	Water	08/01/2012 08:15	08/03/2012 10:00



A division of Eberline Analytical Corporation

264 Welsh Pool Road
Exton, Pennsylvania 19341
Phone (610) 280-3000
Fax (610) 280-3041

Case Narrative

Client: WC-HANFORD RC-138 K3813
LVL #: 1208013

W.O. #: 60049-001-001-0001-00
Date Received: 08-03-2012

GC/MS VOLATILE

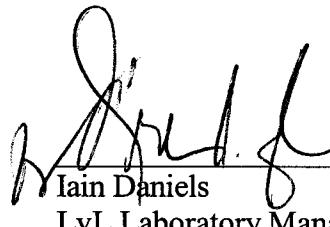
Four (4) water samples were collected on 08-01-2012.

The samples and associated QC samples were prepared and analyzed 08-03-2012 according to criteria set forth in Lionville Laboratory SOPs. The preparation and analysis procedures were based on EPA Method 624 for Client Specified Volatile target compounds.

Lionville Laboratory (LvL) is NELAP accredited by the State of Pennsylvania. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager. LvL certifies that all test results meet the requirements of NELAC with any exception noted in the following statements:

1. The results presented in this report are derived from samples that met LvL's sample acceptance policy.
2. Samples were analyzed within holding time.
3. Non-target compounds were not detected in these samples.
4. All obtainable surrogate recoveries were within QC acceptance criteria.
5. All obtainable matrix spike recoveries were within QC acceptance criteria.
6. All blank spike recoveries were within QC acceptance criteria.
7. The samples were preserved to a pH less than 2.0, which has an effect on the recovery of the target compound 2-CEVE.
8. The method blank was below the reporting limit for all target analytes.
9. All initial calibrations associated with this data set were within acceptance criteria.
10. Manual integrations are performed according to SOP QA-125 to produce quality data with utmost integrity. All manual integrations are required to be technically valid and properly documented. Appropriate technical flags are defined in the Glossary ("Technical Flags For Manual Integration").

11. "I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."



Iain Daniels
LvL Laboratory Manager

8/16/12
Date

GLOSSARY

DATA QUALIFIERS

- U** = Indicates that the compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit, which is included and corrected for dilution and percent moisture.
- J** = Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- B** = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.
- E** = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- D** = Identifies all compounds identified in an analysis at a secondary dilution factor.
- I** = Interference.
- NQ** = Result qualitatively confirmed but not able to quantify.
- A** = Indicates that a TIC is a suspected aldol-condensation product.
- N** = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.
- X** = This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).
- Y** = Additional qualifiers used as required are explained in the case narrative.

GLOSSARY

ABBREVIATIONS

- BS** = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spike solutions and carried through all the steps in the method. Spike recoveries are reported.
- BSD** = Indicates blank spike duplicate.
- MS** = Indicates matrix spike.
- MSD** = Indicates matrix spike duplicate.
- DL** = Suffix added to sample number to indicate that results are from a diluted analysis.
- NA** = Not Applicable.
- DF** = Dilution Factor.
- NR** = Not Required.
- SP, Z** = Indicates Spiked Compound.

TECHNICAL FLAGS FOR MANUAL INTEGRATION

Manual quantitation modifications are performed routinely to improve the data quality for a variety of technical reasons. Documentation of these modifications should be clear and concise. The following "flags" are used to indicate the technical reasons for quantitation modifications:

- MP - Missed Peak: Manually added peak not found by automatic quantitation program.
- PA - Peak Assignment: quantitation report was changed to reflect correct peak assignment.
- RI - Routine Integration: routine integrations are performed for some analytes that are consistently integrated improperly by the automatic integration programs. Examples are the dichlorobenzene isomers on the VOA packed column and benzo(b)fluoranthene/benzo(k)fluoranthene, which are poorly resolved on the BNA column.
- SP - Split Peak: the automatic integration improperly split the peak; a manual integration was performed to get the correct area.
- CB - Coelution/Background: peak was manually integrated to eliminate contribution from coeluting compounds, background
- PI - Proper Integration: a peak with poor or inconsistent integration (e.g., excessive tail) was properly integrated manually.



A division of Eberline Analytical Corporation

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WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-138
Project Number: K3963
Project Manager: Joan Kessner

Reported:
08/15/2012 14:03

J1PWW0-A
1208013-01 (Water)

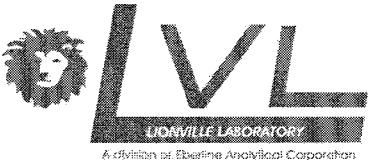
Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Purgeable Organic Compounds by EPA 624

1,1,1-Trichloroethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,1,2,2-Tetrachloroethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,1,2-Trichloroethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,1-Dichloroethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,1-Dichloroethene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,2-Dichloroethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,2-Dichloropropane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
2-Chloroethyl Vinyl Ether	20.0	U	20.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Benzene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Bromodichloromethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Bromoform	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Bromomethane	10.0	U	10.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Carbon Tetrachloride	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Chlorobenzene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Chloroethane	10.0	U	10.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Chloroform	4.00	J	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Chloromethane	10.0	U	10.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
cis-1,3-Dichloropropene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Dibromochloromethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Ethylbenzene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Methylene Chloride	6.00	U	6.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Tetrachloroethene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Toluene	6.22		5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
trans-1,2-Dichloroethene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
trans-1,3-Dichloropropene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Trichloroethene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Vinyl chloride	10.0	U	10.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Acrylonitrile	20.0	U	20.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Acrolein	20.0	U	20.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Surrogate: 1,2-Dichloroethane-d4	103 %		60-140			L208025	08/03/2012	08/03/2012	EPA 624
Surrogate: Toluene-d8	96 %		65-120			L208025	08/03/2012	08/03/2012	EPA 624
Surrogate: 4-Bromofluorobenzene	93 %		75-130			L208025	08/03/2012	08/03/2012	EPA 624

000000013



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WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-138
Project Number: K3963
Project Manager: Joan Kessner

Reported:
08/15/2012 14:03

J1PWW0-B
1208013-02 (Water)

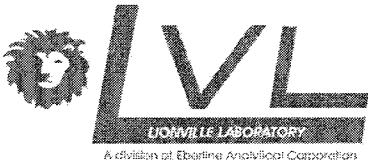
Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Purgeable Organic Compounds by EPA 624

1,1,1-Trichloroethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,1,2,2-Tetrachloroethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,1,2-Trichloroethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,1-Dichloroethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,1-Dichloroethene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,2-Dichloroethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,2-Dichloropropane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
2-Chloroethyl Vinyl Ether	20.0	U	20.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Benzene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Bromodichloromethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Bromoform	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Bromomethane	10.0	U	10.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Carbon Tetrachloride	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Chlorobenzene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Chloroethane	10.0	U	10.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Chloroform	3.71	J	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Chloromethane	10.0	U	10.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
cis-1,3-Dichloropropene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Dibromochloromethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Ethylbenzene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Methylene Chloride	6.00	U	6.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Tetrachloroethene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Toluene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
trans-1,2-Dichloroethene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
trans-1,3-Dichloropropene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Trichloroethene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Vinyl chloride	10.0	U	10.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Acrylonitrile	20.0	U	20.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Acrolein	20.0	U	20.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>114 %</i>		<i>60-140</i>			<i>L208025</i>	<i>08/03/2012</i>	<i>08/03/2012</i>	<i>EPA 624</i>
<i>Surrogate: Toluene-d8</i>	<i>95 %</i>		<i>65-120</i>			<i>L208025</i>	<i>08/03/2012</i>	<i>08/03/2012</i>	<i>EPA 624</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>93 %</i>		<i>75-130</i>			<i>L208025</i>	<i>08/03/2012</i>	<i>08/03/2012</i>	<i>EPA 624</i>

000000014



264 Welsh Pool Road
Exton, PA 19341
Phone: 610-280-3000
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WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-138
Project Number: K3963
Project Manager: Joan Kessner

Reported:
08/15/2012 14:03

J1PWW0-C
1208013-03 (Water)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Purgeable Organic Compounds by EPA 624

1,1,1-Trichloroethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,1,2,2-Tetrachloroethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,1,2-Trichloroethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,1-Dichloroethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,1-Dichloroethene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,2-Dichloroethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,2-Dichloropropane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
2-Chloroethyl Vinyl Ether	20.0	U	20.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Benzene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Bromodichloromethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Bromoform	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Bromomethane	10.0	U	10.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Carbon Tetrachloride	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Chlorobenzene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Chloroethane	10.0	U	10.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Chloroform	3.97	J	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Chloromethane	10.0	U	10.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
cis-1,3-Dichloropropene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Dibromochloromethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Ethylbenzene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Methylene Chloride	6.00	U	6.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Tetrachloroethene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Toluene	5.39		5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
trans-1,2-Dichloroethene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
trans-1,3-Dichloropropene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Trichloroethene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Vinyl chloride	10.0	U	10.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Acrylonitrile	20.0	U	20.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Acrolein	20.0	U	20.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
<i>Surrogate: 1,2-Dichloroethane-d4</i>	107 %		60-140			L208025	08/03/2012	08/03/2012	EPA 624
<i>Surrogate: Toluene-d8</i>	96 %		65-120			L208025	08/03/2012	08/03/2012	EPA 624
<i>Surrogate: 4-Bromofluorobenzene</i>	94 %		75-130			L208025	08/03/2012	08/03/2012	EPA 624

000000015



264 Welsh Pool Road
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WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-138
Project Number: K3963
Project Manager: Joan Kessner

Reported:
08/15/2012 14:03

J1PWW0-D
1208013-04 (Water)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Purgeable Organic Compounds by EPA 624

1,1,1-Trichloroethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,1,2,2-Tetrachloroethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,1,2-Trichloroethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,1-Dichloroethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,1-Dichloroethene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,2-Dichloroethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,2-Dichloropropane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
2-Chloroethyl Vinyl Ether	20.0	U	20.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Benzene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Bromodichloromethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Bromoform	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Bromomethane	10.0	U	10.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Carbon Tetrachloride	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Chlorobenzene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Chloroethane	10.0	U	10.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Chloroform	4.29	J	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Chloromethane	10.0	U	10.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
cis-1,3-Dichloropropene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Dibromochloromethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Ethylbenzene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Methylene Chloride	6.00	U	6.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Tetrachloroethene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Toluene	3.24	J	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
trans-1,2-Dichloroethene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
trans-1,3-Dichloropropene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Trichloroethene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Vinyl chloride	10.0	U	10.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Acrylonitrile	20.0	U	20.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Acrolein	20.0	U	20.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Surrogate: 1,2-Dichloroethane-d4	117 %		60-140			L208025	08/03/2012	08/03/2012	EPA 624
Surrogate: Toluene-d8	103 %		65-120			L208025	08/03/2012	08/03/2012	EPA 624
Surrogate: 4-Bromofluorobenzene	100 %		75-130			L208025	08/03/2012	08/03/2012	EPA 624

000000016



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WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-138
Project Number: K3963
Project Manager: Joan Kessner

Reported:
08/15/2012 14:03

Purgeable Organic Compounds by EPA 624 - Quality Control
Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit		
Batch L208025 - EPA 624												
Blank (L208025-BLK1)												
1,1,1-Trichloroethane	5.00	U	5.00	ug/L								
1,1,2,2-Tetrachloroethane	5.00	U	5.00	ug/L								
1,1,2-Trichloroethane	5.00	U	5.00	ug/L								
1,1-Dichloroethane	5.00	U	5.00	ug/L								
1,1-Dichloroethene	5.00	U	5.00	ug/L								
1,2-Dichloroethane	5.00	U	5.00	ug/L								
1,2-Dichloropropane	5.00	U	5.00	ug/L								
2-Chloroethyl Vinyl Ether	20.0	U	20.0	ug/L								
Benzene	5.00	U	5.00	ug/L								
Bromodichloromethane	5.00	U	5.00	ug/L								
Bromoform	5.00	U	5.00	ug/L								
Bromomethane	10.0	U	10.0	ug/L								
Carbon Tetrachloride	5.00	U	5.00	ug/L								
Chlorobenzene	5.00	U	5.00	ug/L								
Chloroethane	10.0	U	10.0	ug/L								
Chloroform	5.00	U	5.00	ug/L								
Chloromethane	10.0	U	10.0	ug/L								
cis-1,3-Dichloropropene	5.00	U	5.00	ug/L								
Dibromochloromethane	5.00	U	5.00	ug/L								
Ethylbenzene	5.00	U	5.00	ug/L								
Methylene Chloride	6.00	U	6.00	ug/L								
Tetrachloroethene	5.00	U	5.00	ug/L								
Toluene	5.00	U	5.00	ug/L								
trans-1,2-Dichloroethene	5.00	U	5.00	ug/L								
trans-1,3-Dichloropropene	5.00	U	5.00	ug/L								
Trichloroethene	5.00	U	5.00	ug/L								
Vinyl chloride	10.0	U	10.0	ug/L								
Acrylonitrile	20.0	U	20.0	ug/L								
Acrolein	20.0	U	20.0	ug/L								
Surrogate: 1,2-Dichloroethane-d4	30.1			ug/L	30.000	100	60-140					
Surrogate: Toluene-d8	27.1			ug/L	30.000	90	65-120					
Surrogate: 4-Bromofluorobenzene	27.8			ug/L	30.000	93	75-130					

000000017



264 Welsh Pool Road
Exton, PA 19341
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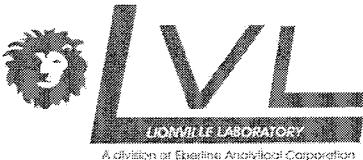
WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-138
Project Number: K3963
Project Manager: Joan Kessner

Reported:
08/15/2012 14:03

Purgeable Organic Compounds by EPA 624 - Quality Control
Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L208025 - EPA 624									
LCS (L208025-BS1)									
					Prepared & Analyzed: 08/03/2012				
1,1,1-Trichloroethane	20.4	5.00	ug/L	20.000	102	52-162			
1,1,2,2-Tetrachloroethane	19.3	5.00	ug/L	20.000	97	46-157			
1,1,2-Trichloroethane	18.5	5.00	ug/L	20.000	92	52-150			
1,1-Dichloroethane	19.5	5.00	ug/L	20.000	97	59-155			
1,1-Dichloroethene	17.6	5.00	ug/L	20.000	88	0-234			
1,2-Dichloroethane	20.2	5.00	ug/L	20.000	101	49-155			
1,2-Dichloropropane	18.9	5.00	ug/L	20.000	95	0-210			
Benzene	19.0	5.00	ug/L	20.000	95	37-151			
Bromodichloromethane	18.8	5.00	ug/L	20.000	94	35-155			
Bromoform	18.2	5.00	ug/L	20.000	91	45-169			
Bromomethane	20.6	10.0	ug/L	20.000	103	0-242			
Carbon Tetrachloride	20.1	5.00	ug/L	20.000	101	70-140			
Chlorobenzene	18.8	5.00	ug/L	20.000	94	37-160			
Chloroethane	22.2	10.0	ug/L	20.000	111	14-230			
Chloroform	19.8	5.00	ug/L	20.000	99	51-138			
Chloromethane	21.9	10.0	ug/L	20.000	110	0-273			
cis-1,3-Dichloropropene	17.4	5.00	ug/L	20.000	87	0-227			
Dibromochloromethane	18.1	5.00	ug/L	20.000	91	43-149			
Ethylbenzene	18.7	5.00	ug/L	20.000	93	37-162			
Methylene Chloride	18.3	6.00	ug/L	20.000	91	0-221			
Tetrachloroethene	18.7	5.00	ug/L	20.000	94	64-148			
Toluene	18.7	5.00	ug/L	20.000	93	47-150			
trans-1,2-Dichloroethene	18.2	5.00	ug/L	20.000	91	54-156			
trans-1,3-Dichloropropene	19.6	5.00	ug/L	20.000	98	17-183			
Trichloroethene	18.8	5.00	ug/L	20.000	94	71-157			
Vinyl chloride	21.5	10.0	ug/L	20.000	107	0-251			
Surrogate: 1,2-Dichloroethane-d4	31.4		ug/L	30.000	105	60-140			
Surrogate: Toluene-d8	29.4		ug/L	30.000	98	65-120			
Surrogate: 4-Bromofluorobenzene	30.1		ug/L	30.000	100	75-130			



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WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-138
Project Number: K3963
Project Manager: Joan Kessner

Reported:
08/15/2012 14:03

Purgeable Organic Compounds by EPA 624 - Quality Control
Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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Batch L208025 - EPA 624

Matrix Spike (L208025-MS1)	Source: 1208013-01	Prepared & Analyzed: 08/03/2012					
1,1,1-Trichloroethane	22.0	5.00	ug/L	20.000	5.00 U	110	52-162
1,1,2,2-Tetrachloroethane	20.2	5.00	ug/L	20.000	5.00 U	101	46-157
1,1,2-Trichloroethane	19.5	5.00	ug/L	20.000	5.00 U	98	52-150
1,1-Dichloroethane	20.5	5.00	ug/L	20.000	5.00 U	103	59-155
1,1-Dichloroethene	18.5	5.00	ug/L	20.000	5.00 U	93	0-234
1,2-Dichloroethane	21.1	5.00	ug/L	20.000	5.00 U	105	49-155
1,2-Dichloropropane	20.4	5.00	ug/L	20.000	5.00 U	102	0-210
Benzene	20.0	5.00	ug/L	20.000	5.00 U	100	37-151
Bromodichloromethane	20.2	5.00	ug/L	20.000	5.00 U	101	35-155
Bromoform	18.3	5.00	ug/L	20.000	5.00 U	92	45-169
Bromomethane	19.4	10.0	ug/L	20.000	10.0 U	97	0-242
Carbon Tetrachloride	20.8	5.00	ug/L	20.000	5.00 U	104	70-140
Chlorobenzene	20.3	5.00	ug/L	20.000	5.00 U	101	37-160
Chloroethane	20.2	10.0	ug/L	20.000	10.0 U	101	14-230
Chloroform	25.6	5.00	ug/L	20.000	4.00	108	51-138
Chloromethane	20.2	10.0	ug/L	20.000	10.0 U	101	0-273
cis-1,3-Dichloropropene	16.8	5.00	ug/L	20.000	5.00 U	84	0-227
Dibromochloromethane	19.4	5.00	ug/L	20.000	5.00 U	97	43-149
Ethylbenzene	19.9	5.00	ug/L	20.000	5.00 U	99	37-162
Methylene Chloride	19.2	6.00	ug/L	20.000	6.00 U	96	0-221
Tetrachloroethene	20.1	5.00	ug/L	20.000	5.00 U	101	64-148
Toluene	24.9	5.00	ug/L	20.000	6.22	93	47-150
trans-1,2-Dichloroethene	19.6	5.00	ug/L	20.000	5.00 U	98	54-156
trans-1,3-Dichloropropene	19.3	5.00	ug/L	20.000	5.00 U	97	17-183
Trichloroethene	21.3	5.00	ug/L	20.000	5.00 U	106	71-157
Vinyl chloride	18.6	10.0	ug/L	20.000	10.0 U	93	0-251
Surrogate: 1,2-Dichloroethane-d4	33.4		ug/L	30.000		111	60-140
Surrogate: Toluene-d8	30.9		ug/L	30.000		103	65-120
Surrogate: 4-Bromofluorobenzene	32.6		ug/L	30.000		109	75-130



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WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-138
Project Number: K3963
Project Manager: Joan Kessner

Reported:
08/15/2012 14:03

Purgeable Organic Compounds by EPA 624 - Quality Control
Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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Batch L208025 - EPA 624

Matrix Spike Dup (L208025-MSD1)	Source: 1208013-01	Prepared & Analyzed: 08/03/2012							
1,1,1-Trichloroethane	21.2	5.00	ug/L	20.000	5.00 U	106	52-162	4	20
1,1,2,2-Tetrachloroethane	19.5	5.00	ug/L	20.000	5.00 U	97	46-157	4	20
1,1,2-Trichloroethane	19.3	5.00	ug/L	20.000	5.00 U	96	52-150	1	20
1,1-Dichloroethane	20.1	5.00	ug/L	20.000	5.00 U	100	59-155	2	20
1,1-Dichloroethene	18.3	5.00	ug/L	20.000	5.00 U	92	0-234	1	20
1,2-Dichloroethane	20.4	5.00	ug/L	20.000	5.00 U	102	49-155	3	20
1,2-Dichloropropane	19.5	5.00	ug/L	20.000	5.00 U	98	0-210	4	20
Benzene	19.2	5.00	ug/L	20.000	5.00 U	96	37-151	4	20
Bromodichloromethane	19.8	5.00	ug/L	20.000	5.00 U	99	35-155	2	20
Bromoform	17.2	5.00	ug/L	20.000	5.00 U	86	45-169	7	20
Bromomethane	19.2	10.0	ug/L	20.000	10.0 U	96	0-242	0.9	20
Carbon Tetrachloride	20.2	5.00	ug/L	20.000	5.00 U	101	70-140	3	20
Chlorobenzene	19.6	5.00	ug/L	20.000	5.00 U	98	37-160	3	20
Chloroethane	20.5	10.0	ug/L	20.000	10.0 U	103	14-230	2	20
Chloroform	25.3	5.00	ug/L	20.000	4.00	107	51-138	1	20
Chloromethane	19.9	10.0	ug/L	20.000	10.0 U	100	0-273	2	20
cis-1,3-Dichloropropene	16.3	5.00	ug/L	20.000	5.00 U	81	0-227	3	20
Dibromochloromethane	18.7	5.00	ug/L	20.000	5.00 U	93	43-149	3	20
Ethylbenzene	18.6	5.00	ug/L	20.000	5.00 U	93	37-162	6	20
Methylene Chloride	19.5	6.00	ug/L	20.000	6.00 U	97	0-221	1	20
Tetrachloroethene	19.0	5.00	ug/L	20.000	5.00 U	95	64-148	6	20
Toluene	23.6	5.00	ug/L	20.000	6.22	87	47-150	5	20
trans-1,2-Dichloroethene	19.0	5.00	ug/L	20.000	5.00 U	95	54-156	3	20
trans-1,3-Dichloropropene	18.4	5.00	ug/L	20.000	5.00 U	92	17-183	5	20
Trichloroethene	20.4	5.00	ug/L	20.000	5.00 U	102	71-157	4	20
Vinyl chloride	20.0	10.0	ug/L	20.000	10.0 U	100	0-251	7	20
Surrogate: 1,2-Dichloroethane-d4	31.7		ug/L	30.000		106	60-140		
Surrogate: Toluene-d8	29.8		ug/L	30.000		99	65-120		
Surrogate: 4-Bromofluorobenzene	32.2		ug/L	30.000		107	75-130		

000000020

PREPARATION BENCH SHEET

L208025

Prepared using: VOACCMS - EPA 624

Printed: 8/4/2012 9:04:01AM

Lionville Laboratory

Matrix: Water

Surrogate used: 0902344

00000000021

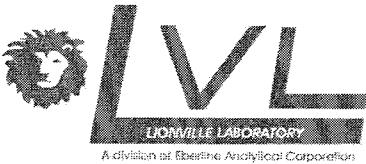
Lab Number	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
L208013-01	624 VOC	08/03/2012 12:54	5	5			3		WC-Hanford, Inc.	
L208013-02	624 VOC	08/03/2012 13:28	5	5			3		WC-Hanford, Inc.	
L208013-03	624 VOC	08/03/2012 14:02	5	5			3		WC-Hanford, Inc.	
L208013-04	624 VOC	08/03/2012 14:36	5	5			3		WC-Hanford, Inc.	
L208025-BLK1	QC	08/03/2012 09:35	5	5			3			
L208025-BS1	QC	08/03/2012 08:26	5	5	1200762		2	3		
L208025-MS1	QC	08/03/2012 15:13	5	5	1200762	1208013-01	2	3		
L208025-MSD1	QC	08/03/2012 15:47	5	5	1200762	1208013-01	2	3		

Extracts Relinquished By _____ Date _____

Extracts Received By _____ Date _____

SEMIVOLATILES

000000022



264 Welsh Pool Road
Exton, PA 19341
Phone: 610-280-3000
Fax: 610-280-3041

WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-138
Project Number: K3963
Project Manager: Joan Kessner

Reported:
08/21/2012 08:31

Analytical Report for Semivolatile Organic Compounds by EPA 625

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1PWW0-A	1208013-01	Water	08/01/2012 08:15	08/03/2012 10:00



A division of Eberline Analytical Corporation

264 Welsh Pool Road
Exton, Pennsylvania 19341
Phone (610) 280-3000
Fax (610) 280-3041

Case Narrative

Client: WC-HANFORD RC-138 K3963
LVL #: 1208013

W.O. #: 60049-001-001-0001-00
Date Received: 08-03-2012

SEMIVOLATILE

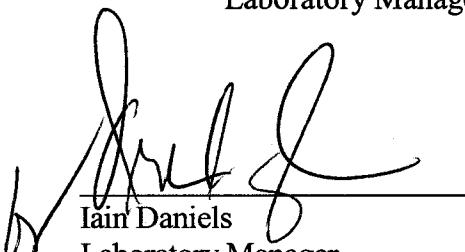
One (1) water sample was collected on 08-01-2012.

The sample and associated QC samples were extracted on 08-08-2012 and analyzed on 08-14-2012 according to Lionville Laboratory SOPs based on EPA method 625 for client specified Semivolatile target compounds.

The following is a summary of QC results accompanying the sample results. Lionville Laboratory (LVL) certifies that all test results meet the requirements of NELAC except as noted below:

1. All results presented in this report are derived from samples that met LvL's sample acceptance policy.
2. Samples were extracted and analyzed within holding time.
3. Non-target compounds were detected in these samples.
4. Two (2) of thirty (30) obtainable surrogate recoveries were outside acceptance criteria. The surrogate recovery criteria were not met for samples J1PW0-A and L208047-MS1. The recovery of p-Terphenyl-d14 was slightly below QC acceptance criteria. The samples were non detect for target compounds. There is minimal impact on the data.
5. Four (4) of fifty-eight (58) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR# 12MS152) has been enclosed.
6. Six (6) of one hundred and sixteen (116) blank spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR# 12MS152) has been enclosed.
7. The method blank was below the reporting limit for all target compounds.
8. All initial calibrations associated with this data set were within acceptance criteria.
9. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
10. Internal standard area and retention time criteria were met.
11. Manual integrations are performed according to SOP QA-125 to produce quality data with the utmost integrity. All manual integrations are required to be technically valid and properly documented. Appropriate technical flags are defined in the Glossary ("Technical Flags For Manual Integration").

12. LVL is NELAP accredited by the State of Pennsylvania. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.
13. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee as verified by the following signature.



Iain Daniels
Laboratory Manager
Lionville Laboratory



Date

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 12MS/52

Initiator: Sharon Syller
 Date: 8-10-12
 Client: WCHL

Batch: 120F013
 Samples: LL0F047-451, ms1, msd1
 Method: SW846/MCAWW/CLP/

Parameter: 665
 Matrix: Aqueous
 Prep Batch: 120F047

1. Reason for SDR

- a. COC Discrepancy Tech Profile Error Client Request Sampler Error on C-O-C
 Transcription Error Wrong Test Code Other _____

b. General Discrepancy

- Missing Sample/Extract Container Broken Wrong Sample Pulled Label ID's Illegible
 Hold Time Exceeded Insufficient Sample Preservation Wrong Received Past Hold
 Improper Bottle Type Not Amenable to Analysis

Note: Verified by [Log-In] or [Prep Group] (circle)...signature/date: _____

c. Problem (Include all relevant specific results; attach data if necessary)

Several Spike recoveries outside QC acceptance limits in L20F047-451, LL0F047-0501, L20F047-ms1

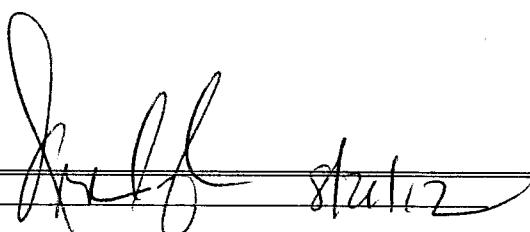
2. Known or Probable Causes(s) ?

3. Discussion and Proposed Action

Other Description:

- Re-log
 Entire Batch
 Following Samples: _____
 Re-leach
 Re-extract
 Re-digest
 Revise EDD
 Change Test Code to _____
 Place On/Take Off Hold (circle)

nature



4. Project Manager Instructions...signature/date:

- Concur with Proposed Action
 Disagree with Proposed Action; See Instruction
 Include in Case Narrative
 Client Contacted:
 Date/Person _____
 Add
 Cancel

8/21/12

5. Final Action...signature/date:

Other Explanation:

- Verified re-[log][leach][extract][digest][analysis] (circle)
 Included in Case Narrative
 Hard Copy COC Revised
 Electronic COC Revised
 EDD Corrections Completed

When Final Action has been recorded, forward original to QA for disposition.

Route

- Lab Manager: Daniels
 Project Mgr (circle): Johnson / Stone
 Sample Prep (circle): Ford
 Log-in: King

Route

- Metals: Welsh / _____
 Inorganic: Perrone / _____
 GC/LC: Carey / _____
 MS VOA: Rubino / _____
 MS BNA: Carden / _____
 Other: _____

GLOSSARY

DATA QUALIFIERS

- U** = Indicates that the compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit, which is included and corrected for dilution and percent moisture.
- J** = Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- B** = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.
- E** = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- D** = Identifies all compounds identified in an analysis at a secondary dilution factor.
- I** = Interference.
- NQ** = Result qualitatively confirmed but not able to quantify
- A** = Indicates that a TIC is a suspected aldol-condensation product.
- N** = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.
- X** = This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).
- Y** = Additional qualifiers used as required are explained in the case narrative.

GLOSSARY

ABBREVIATIONS

- BS** = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spike solutions and carried through all the steps in the method. Spike recoveries are reported.
- BSD** = Indicates blank spike duplicate.
- MS** = Indicates matrix spike.
- MSD** = Indicates matrix spike duplicate.
- DL** = Suffix added to sample number to indicate that results are from a diluted analysis.
- NA** = Not Applicable.
- DF** = Dilution Factor.
- NR** = Not Required.
- SP, Z** = Indicates Spiked Compound.

TECHNICAL FLAGS FOR MANUAL INTEGRATION

Manual quantitation modifications are performed routinely to improve the data quality for a variety of technical reasons. Documentation of these modifications should be clear and concise. The following "flags" are used to indicate the technical reasons for quantitation modifications:

- MP - Missed Peak: Manually added peak not found by automatic quantitation program.
- PA - Peak Assignment: quantitation report was changed to reflect correct peak assignment.
- RI - Routine Integration: routine integrations are performed for some analytes that are consistently integrated improperly by the automatic integration programs. Examples are the dichlorobenzene isomers on the VOA packed column and benzo(b)fluoranthene/benzo(k)fluoranthene, which are poorly resolved on the BNA column.
- SP - Split Peak: the automatic integration improperly split the peak; a manual integration was performed to get the correct area.
- CB - Coelution/Background: peak was manually integrated to eliminate contribution from coeluting compounds, background
- PI - Proper Integration: a peak with poor or inconsistent integration (e.g., excessive tail) was properly integrated manually.



264 Welsh Pool Road
Exton, PA 19341
Phone: 610-280-3000
Fax: 610-280-3041

WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-138
Project Number: K3963
Project Manager: Joan Kessner

Reported:
08/21/2012 08:31

J1PWW0-A
1208013-01 (Water)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Semivolatile Organic Compounds by EPA 625

1,2,4-Trichlorobenzene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
1,2-Dichlorobenzene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
1,3-Dichlorobenzene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
1,4-Dichlorobenzene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
2,4,6-Trichlorophenol	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
2,4-Dichlorophenol	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
2,4-Dimethylphenol	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
2,4-Dinitrophenol	50.0	U	50.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
2,4-Dinitrotoluene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
2,6-Dinitrotoluene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
2-Chloronaphthalene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
2-Chlorophenol	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
2-Nitrophenol	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
3,3'-Dichlorobenzidine	50.0	U	50.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
4,6-Dinitro-2-methylphenol	25.0	U	25.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
4-Bromophenyl Phenyl Ether	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
4-Chloro-3-methylphenol	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
4-Chlorophenyl Phenyl Ether	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
3- and/or 4-Methylphenol	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
4-Nitrophenol	25.0	U	25.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Acenaphthene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Acenaphthylene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Anthracene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Benz[a]anthracene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Benzidine	50.0	U	50.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Benzo[a] pyrene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Benzo[b] fluoranthene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Benzo[g,h,i] perlyne	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Benzo[k] fluoranthene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Bis(2-chloroethoxy) methane	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Bis(2-chloroethyl) ether	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Bis(2-chloroisopropyl) ether	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Bis(2-ethylhexyl) phthalate	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Butyl Benzyl Phthalate	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Chrysene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Dibenz[a,h]anthracene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625

000000030



264 Welsh Pool Road
Exton, PA 19341
Phone: 610-280-3000
Fax: 610-280-3041

WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-138
Project Number: K3963
Project Manager: Joan Kessner

Reported:
08/21/2012 08:31

J1PWW0-A
1208013-01 (Water)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Semivolatile Organic Compounds by EPA 625

Diethyl Phthalate	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Dimethyl Phthalate	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Di-n-butyl Phthalate	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Di-n-octyl Phthalate	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Fluoranthene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Fluorene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Hexachlorobenzene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Hexachlorobutadiene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Hexachlorocyclopentadiene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Hexachloroethane	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Indeno[1,2,3-cd]pyrene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Isophorone	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Naphthalene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Nitrobenzene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
N-Nitrosodimethylamine	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
N-Nitrosodi-n-propylamine	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
N-Nitrosodiphenylamine	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Pentachlorophenol	25.0	U	25.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Phenanthrene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Phenol	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Pyrene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
1,2-Diphenylhydrazine	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
TIC:Alkene 1	14.3	J		ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
TIC:Organic Acid 2	47.8	J		ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
TIC:Unknown 1	12.9	J		ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
TIC:Organic Acid 1	17.1	J		ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
TIC:Unknown 2	25.3	J		ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Surrogate: 2-Fluorophenol	59 %		21-100			L208047	08/08/2012	08/14/2012	EPA 625
Surrogate: Phenol-d5	66 %		10-94			L208047	08/08/2012	08/14/2012	EPA 625
Surrogate: Nitrobenzene-d5	63 %		35-114			L208047	08/08/2012	08/14/2012	EPA 625
Surrogate: 2-Fluorobiphenyl	58 %		43-116			L208047	08/08/2012	08/14/2012	EPA 625
Surrogate: 2,4,6-Tribromophenol	68 %		10-123			L208047	08/08/2012	08/14/2012	EPA 625
Surrogate: p-Terphenyl-d14	30 % *		33-141			L208047	08/08/2012	08/14/2012	EPA 625

000000031



264 Welsh Pool Road
Exton, PA 19341
Phone: 610-280-3000
Fax: 610-280-3041

WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-138
Project Number: K3963
Project Manager: Joan Kessner

Reported:
08/21/2012 08:31

Semivolatile Organic Compounds by EPA 625 - Quality Control
Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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Batch L208047 - EPA 625 Cont.

Blank (L208047-BLK1) Prepared: 08/08/2012 Analyzed: 08/14/2012

1,2,4-Trichlorobenzene	10.0	U	10.0	ug/L
1,2-Dichlorobenzene	10.0	U	10.0	ug/L
1,3-Dichlorobenzene	10.0	U	10.0	ug/L
1,4-Dichlorobenzene	10.0	U	10.0	ug/L
2,4,6-Trichlorophenol	10.0	U	10.0	ug/L
2,4-Dichlorophenol	10.0	U	10.0	ug/L
2,4-Dimethylphenol	10.0	U	10.0	ug/L
2,4-Dinitrophenol	50.0	U	50.0	ug/L
2,4-Dinitrotoluene	10.0	U	10.0	ug/L
2,6-Dinitrotoluene	10.0	U	10.0	ug/L
2-Chloronaphthalene	10.0	U	10.0	ug/L
2-Chlorophenol	10.0	U	10.0	ug/L
2-Nitrophenol	10.0	U	10.0	ug/L
3,3'-Dichlorobenzidine	50.0	U	50.0	ug/L
4,6-Dinitro-2-methylphenol	25.0	U	25.0	ug/L
4-Bromophenyl Phenyl Ether	10.0	U	10.0	ug/L
4-Chloro-3-methylphenol	10.0	U	10.0	ug/L
4-Chlorophenyl Phenyl Ether	10.0	U	10.0	ug/L
3- and/or 4-Methylphenol	10.0	U	10.0	ug/L
4-Nitrophenol	25.0	U	25.0	ug/L
Acenaphthene	10.0	U	10.0	ug/L
Acenaphthylene	10.0	U	10.0	ug/L
Anthracene	10.0	U	10.0	ug/L
Benz[a]anthracene	10.0	U	10.0	ug/L
Benzidine	50.0	U	50.0	ug/L
Benzo[a] pyrene	10.0	U	10.0	ug/L
Benzo[b] fluoranthene	10.0	U	10.0	ug/L
Benzo[g,h,i] perylene	10.0	U	10.0	ug/L
Benzo[k] fluoranthene	10.0	U	10.0	ug/L
Bis(2-chloroethoxy) methane	10.0	U	10.0	ug/L
Bis(2-chloroethyl) ether	10.0	U	10.0	ug/L
Bis(2-chloroisopropyl) ether	10.0	U	10.0	ug/L
Bis(2-ethylhexyl) phthalate	10.0	U	10.0	ug/L
Butyl Benzyl Phthalate	10.0	U	10.0	ug/L
Chrysene	10.0	U	10.0	ug/L
Dibenz[a,h]anthracene	10.0	U	10.0	ug/L

000000032



264 Welsh Pool Road
Exton, PA 19341
Phone: 610-280-3000
Fax: 610-280-3041

WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-138
Project Number: K3963
Project Manager: Joan Kessner

Reported:
08/21/2012 08:31

Semivolatile Organic Compounds by EPA 625 - Quality Control
Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit		
Batch L208047 - EPA 625 Cont.												
Blank (L208047-BLK1)												
Diethyl Phthalate	10.0	U	10.0	ug/L								
Dimethyl Phthalate	10.0	U	10.0	ug/L								
Di-n-butyl Phthalate	10.0	U	10.0	ug/L								
Di-n-octyl Phthalate	10.0	U	10.0	ug/L								
Fluoranthene	10.0	U	10.0	ug/L								
Fluorene	10.0	U	10.0	ug/L								
Hexachlorobenzene	10.0	U	10.0	ug/L								
Hexachlorobutadiene	10.0	U	10.0	ug/L								
Hexachlorocyclopentadiene	10.0	U	10.0	ug/L								
Hexachloroethane	10.0	U	10.0	ug/L								
Indeno[1,2,3-cd]pyrene	10.0	U	10.0	ug/L								
Isophorone	10.0	U	10.0	ug/L								
Naphthalene	10.0	U	10.0	ug/L								
Nitrobenzene	10.0	U	10.0	ug/L								
N-Nitrosodimethylamine	10.0	U	10.0	ug/L								
N-Nitrosodi-n-propylamine	10.0	U	10.0	ug/L								
N-Nitrosodiphenylamine	10.0	U	10.0	ug/L								
Pentachlorophenol	25.0	U	25.0	ug/L								
Phenanthrene	10.0	U	10.0	ug/L								
Phenol	10.0	U	10.0	ug/L								
Pyrene	10.0	U	10.0	ug/L								
1,2-Diphenylhydrazine	10.0	U	10.0	ug/L								
<i>Surrogate: 2-Fluorophenol</i>	43.2			ug/L	75.000		58	21-100				
<i>Surrogate: Phenol-d5</i>	47.8			ug/L	75.000		64	10-94				
<i>Surrogate: Nitrobenzene-d5</i>	32.5			ug/L	50.000		65	35-114				
<i>Surrogate: 2-Fluorobiphenyl</i>	29.6			ug/L	50.000		59	43-116				
<i>Surrogate: 2,4,6-Tribromophenol</i>	49.4			ug/L	75.000		66	10-123				
<i>Surrogate: p-Terphenyl-d14</i>	45.9			ug/L	50.000		92	33-141				

000000033



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WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-138
Project Number: K3963
Project Manager: Joan Kessner

Reported:
08/21/2012 08:31

Semivolatile Organic Compounds by EPA 625 - Quality Control
Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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Batch L208047 - EPA 625 Cont.

LCS (L208047-BS1)							Prepared: 08/08/2012	Analyzed: 08/14/2012
1,2,4-Trichlorobenzene	22.5		ug/L	60.000	37*	44-142		
1,2-Dichlorobenzene	19.1		ug/L	60.000	32	32-129		
1,3-Dichlorobenzene	16.1		ug/L	60.000	27	1-172		
1,4-Dichlorobenzene	17.1		ug/L	60.000	29	20-124		
2,4,6-Trichlorophenol	39.0		ug/L	60.000	65	37-144		
2,4-Dichlorophenol	34.6		ug/L	60.000	58	39-135		
2,4-Dimethylphenol	22.6		ug/L	60.000	38	32-119		
2,4-Dinitrophenol	46.5		ug/L	60.000	77	1-191		
2,4-Dinitrotoluene	42.3		ug/L	60.000	71	39-139		
2,6-Dinitrotoluene	42.2		ug/L	60.000	70	50-158		
2-Chloronaphthalene	35.4		ug/L	60.000	59*	80-118		
2-Chlorophenol	34.6		ug/L	60.000	58	23-134		
2-Nitrophenol	33.0		ug/L	60.000	55	29-182		
3,3'-Dichlorobenzidine	41.2		ug/L	60.000	69	1-262		
4,6-Dinitro-2-methylphenol	48.7		ug/L	60.000	81	1-181		
4-Bromophenyl Phenyl Ether	41.8		ug/L	60.000	70	53-127		
4-Chloro-3-methylphenol	38.0		ug/L	60.000	63	22-147		
4-Chlorophenyl Phenyl Ether	40.4		ug/L	60.000	67	25-158		
3- and/or 4-Methylphenol	38.7		ug/L	60.000	65	40-110		
4-Nitrophenol	45.2		ug/L	60.000	75	1-132		
Acenaphthene	37.2		ug/L	60.000	62	47-145		
Acenaphthylene	38.2		ug/L	60.000	64	33-145		
Anthracene	40.4		ug/L	60.000	67	27-133		
Benz[a]anthracene	42.1		ug/L	60.000	70	33-143		
Benzidine	19.3		ug/L	60.000	32	1-180		
Benzo[a] pyrene	41.3		ug/L	60.000	69	50-140		
Benzo[b] fluoranthene	42.9		ug/L	60.000	72	50-140		
Benzo[g,h,i] perylene	43.6		ug/L	60.000	73	50-140		
Benzo[k] fluoranthene	44.9		ug/L	60.000	75	50-140		
Bis(2-chloroethoxy) methane	35.5		ug/L	60.000	59	33-184		
Bis(2-chloroethyl) ether	35.9		ug/L	60.000	60	12-158		
Bis(2-chloroisopropyl) ether	35.2		ug/L	60.000	59	36-166		
Bis(2-ethylhexyl) phthalate	52.5		ug/L	60.000	88	8-158		
Butyl Benzyl Phthalate	45.2		ug/L	60.000	75	1-152		
Chrysene	43.2		ug/L	60.000	72	17-168		
Dibenz[a,h]anthracene	44.0		ug/L	60.000	73	1-227		

000000034



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Richland WA, 99354

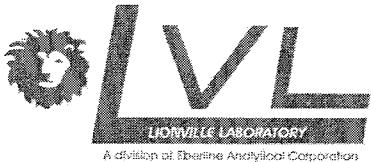
Project: RC-138
Project Number: K3963
Project Manager: Joan Kessner

Reported:
08/21/2012 08:31

Semivolatile Organic Compounds by EPA 625 - Quality Control
Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L208047 - EPA 625 Cont.									
LCS (L208047-BS1) Prepared: 08/08/2012 Analyzed: 08/14/2012									
Diethyl Phthalate	41.2		ug/L	60.000	69	1-114			
Dimethyl Phthalate	40.3		ug/L	60.000	67	50-140			
Di-n-butyl Phthalate	39.6		ug/L	60.000	66	40-150			
Di-n-octyl Phthalate	49.8		ug/L	60.000	83	50-150			
Fluoranthene	39.3		ug/L	60.000	65	26-137			
Fluorene	39.8		ug/L	60.000	66	59-121			
Hexachlorobenzene	41.7		ug/L	60.000	70	1-152			
Hexachlorobutadiene	19.5		ug/L	60.000	33	24-116			
Hexachlorocyclopentadiene	19.1		ug/L	60.000	32	1-180			
Hexachloroethane	13.7		ug/L	60.000	23*	40-113			
Indeno[1,2,3-cd]pyrene	43.5		ug/L	60.000	72	1-171			
Isophorone	35.5		ug/L	60.000	59	21-196			
Naphthalene	29.9		ug/L	60.000	50	21-133			
Nitrobenzene	32.5		ug/L	60.000	54	35-180			
N-Nitrosodimethylamine	33.6		ug/L	60.000	56	1-180			
N-Nitrosodi-n-propylamine	37.9		ug/L	60.000	63	40-120			
N-Nitrosodiphenylamine	38.2		ug/L	60.000	64	1-180			
Pentachlorophenol	52.4		ug/L	60.000	87	14-176			
Phenanthrene	41.3		ug/L	60.000	69	54-120			
Phenol	37.7		ug/L	60.000	63	5-112			
Pyrene	43.0		ug/L	60.000	72	52-115			
1,2-Diphenylhydrazine	41.7		ug/L	60.000	69	50-110			
<i>Surrogate: 2-Fluorophenol</i>	46.0		ug/L	75.000	61	21-100			
<i>Surrogate: Phenol-d5</i>	51.3		ug/L	75.000	68	10-94			
<i>Surrogate: Nitrobenzene-d5</i>	31.6		ug/L	50.000	63	35-114			
<i>Surrogate: 2-Fluorobiphenyl</i>	34.6		ug/L	50.000	69	43-116			
<i>Surrogate: 2,4,6-Tribromophenol</i>	57.4		ug/L	75.000	76	10-123			
<i>Surrogate: p-Terphenyl-d14</i>	40.4		ug/L	50.000	81	33-141			

000000035



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WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-138
Project Number: K3963
Project Manager: Joan Kessner

Reported:
08/21/2012 08:31

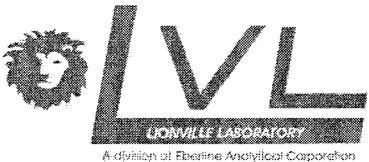
Semivolatile Organic Compounds by EPA 625 - Quality Control
Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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Batch L208047 - EPA 625 Cont.

LCS Dup (L208047-BSD1)		Prepared: 08/08/2012 Analyzed: 08/14/2012							
Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
1,2,4-Trichlorobenzene	25.6		ug/L	60.000	43*	44-142	13	20	
1,2-Dichlorobenzene	21.1		ug/L	60.000	35	32-129	10	20	
1,3-Dichlorobenzene	17.9		ug/L	60.000	30	1-172	11	20	
1,4-Dichlorobenzene	19.0		ug/L	60.000	32	20-124	10	20	
2,4,6-Trichlorophenol	44.3		ug/L	60.000	74	37-144	13	20	
2,4-Dichlorophenol	37.3		ug/L	60.000	62	39-135	8	20	
2,4-Dimethylphenol	25.6		ug/L	60.000	43	32-119	12	20	
2,4-Dinitrophenol	47.8		ug/L	60.000	80	1-191	3	20	
2,4-Dinitrotoluene	49.8		ug/L	60.000	83	39-139	16	20	
2,6-Dinitrotoluene	48.0		ug/L	60.000	80	50-158	13	20	
2-Chloronaphthalene	39.5		ug/L	60.000	66*	80-118	11	20	
2-Chlorophenol	36.3		ug/L	60.000	61	23-134	5	20	
2-Nitrophenol	36.0		ug/L	60.000	60	29-182	9	20	
3,3'-Dichlorobenzidine	49.2		ug/L	60.000	82	1-262	18	20	
4,6-Dinitro-2-methylphenol	57.6		ug/L	60.000	96	1-181	17	20	
4-Bromophenyl Phenyl Ether	46.8		ug/L	60.000	78	53-127	11	20	
4-Chloro-3-methylphenol	41.5		ug/L	60.000	69	22-147	9	20	
4-Chlorophenyl Phenyl Ether	45.7		ug/L	60.000	76	25-158	12	20	
3- and/or 4-Methylphenol	40.2		ug/L	60.000	67	40-110	4	20	
4-Nitrophenol	57.0		ug/L	60.000	95	1-132	23*	20	
Acenaphthene	41.1		ug/L	60.000	68	47-145	10	20	
Acenaphthylene	42.5		ug/L	60.000	71	33-145	11	20	
Anthracene	44.6		ug/L	60.000	74	27-133	10	20	
Benz[a]anthracene	47.6		ug/L	60.000	79	33-143	12	20	
Benzidine	27.1		ug/L	60.000	45	1-180	34*	20	
Benzo[a] pyrene	47.1		ug/L	60.000	79	50-140	13	20	
Benzo[b] fluoranthene	49.3		ug/L	60.000	82	50-140	14	20	
Benzo[g,h,i] perylene	48.3		ug/L	60.000	80	50-140	10	20	
Benzo[k] fluoranthene	47.3		ug/L	60.000	79	50-140	5	20	
Bis(2-chloroethoxy) methane	37.6		ug/L	60.000	63	33-184	6	20	
Bis(2-chloroethyl) ether	37.4		ug/L	60.000	62	12-158	4	20	
Bis(2-chloroisopropyl) ether	36.4		ug/L	60.000	61	36-166	3	20	
Bis(2-ethylhexyl) phthalate	50.3		ug/L	60.000	84	8-158	4	20	
Butyl Benzyl Phthalate	48.9		ug/L	60.000	82	1-152	8	20	
Chrysene	48.7		ug/L	60.000	81	17-168	12	20	
Dibenz[a,h]anthracene	48.5		ug/L	60.000	81	1-227	10	20	

000000036



264 Welsh Pool Road
Exton, PA 19341
Phone: 610-280-3000
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WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-138
Project Number: K3963
Project Manager: Joan Kessner

Reported:
08/21/2012 08:31

Semivolatile Organic Compounds by EPA 625 - Quality Control
Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L208047 - EPA 625 Cont.									
LCS Dup (L208047-BSD1) Prepared: 08/08/2012 Analyzed: 08/14/2012									
Diethyl Phthalate	46.1		ug/L	60.000	77	1-114	11	20	
Dimethyl Phthalate	44.6		ug/L	60.000	74	50-140	10	40	
Di-n-butyl Phthalate	44.8		ug/L	60.000	75	40-150	12	40	
Di-n-octyl Phthalate	51.1		ug/L	60.000	85	50-150	3	40	
Fluoranthene	46.2		ug/L	60.000	77	26-137	16	20	
Fluorene	44.5		ug/L	60.000	74	59-121	11	20	
Hexachlorobenzene	46.7		ug/L	60.000	78	1-152	11	20	
Hexachlorobutadiene	23.0		ug/L	60.000	38	24-116	16	20	
Hexachlorocyclopentadiene	21.7		ug/L	60.000	36	1-180	13	20	
Hexachloroethane	15.1		ug/L	60.000	25*	40-113	10	20	
Indeno[1,2,3-cd]pyrene	48.2		ug/L	60.000	80	1-171	10	20	
Isophorone	37.7		ug/L	60.000	63	21-196	6	20	
Naphthalene	32.4		ug/L	60.000	54	21-133	8	20	
Nitrobenzene	35.5		ug/L	60.000	59	35-180	9	20	
N-Nitrosodimethylamine	36.6		ug/L	60.000	61	1-180	8	20	
N-Nitrosodi-n-propylamine	40.4		ug/L	60.000	67	40-120	6	20	
N-Nitrosodiphenylamine	41.4		ug/L	60.000	69	1-180	8	20	
Pentachlorophenol	61.3		ug/L	60.000	102	14-176	16	20	
Phenanthrene	45.9		ug/L	60.000	76	54-120	11	20	
Phenol	39.2		ug/L	60.000	65	5-112	4	20	
Pyrene	46.0		ug/L	60.000	77	52-115	7	20	
1,2-Diphenylhydrazine	45.2		ug/L	60.000	75	50-110	8	20	
Surrogate: 2-Fluorophenol	47.7		ug/L	75.000	64	21-100			
Surrogate: Phenol-d5	51.8		ug/L	75.000	69	10-94			
Surrogate: Nitrobenzene-d5	34.2		ug/L	50.000	68	35-114			
Surrogate: 2-Fluorobiphenyl	37.1		ug/L	50.000	74	43-116			
Surrogate: 2,4,6-Tribromophenol	63.5		ug/L	75.000	85	10-123			
Surrogate: p-Terphenyl-d14	41.5		ug/L	50.000	83	33-141			



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Project: RC-138
Project Number: K3963
Project Manager: Joan Kessner

Reported:
08/21/2012 08:31

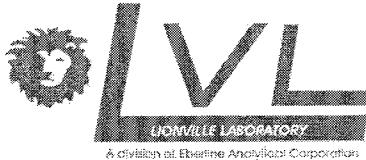
Semivolatile Organic Compounds by EPA 625 - Quality Control
Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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Batch L208047 - EPA 625 Cont.

Matrix Spike (L208047-MS1)	Source: 1208013-01	Prepared: 08/08/2012 Analyzed: 08/14/2012					
1,2,4-Trichlorobenzene	23.2		ug/L	60.000	10.0 U	39*	44-142
1,2-Dichlorobenzene	22.7		ug/L	60.000	10.0 U	38	32-129
1,3-Dichlorobenzene	19.7		ug/L	60.000	10.0 U	33	1-172
1,4-Dichlorobenzene	21.0		ug/L	60.000	10.0 U	35	20-124
2,4,6-Trichlorophenol	37.8		ug/L	60.000	10.0 U	63	37-144
2,4-Dichlorophenol	31.1		ug/L	60.000	10.0 U	52	39-135
2,4-Dimethylphenol	32.5		ug/L	60.000	10.0 U	54	32-119
2,4-Dinitrophenol	46.7		ug/L	60.000	50.0 U	78	1-191
2,4-Dinitrotoluene	41.3		ug/L	60.000	10.0 U	69	39-139
2,6-Dinitrotoluene	40.1		ug/L	60.000	10.0 U	67	50-158
2-Chloronaphthalene	34.8		ug/L	60.000	10.0 U	58*	60-118
2-Chlorophenol	33.5		ug/L	60.000	10.0 U	56	23-134
2-Nitrophenol	28.4		ug/L	60.000	10.0 U	47	29-182
3,3'-Dichlorobenzidine	27.9		ug/L	60.000	50.0 U	46	1-262
4,6-Dinitro-2-methylphenol	41.6		ug/L	60.000	25.0 U	69	1-181
4-Bromophenyl Phenyl Ether	37.1		ug/L	60.000	10.0 U	62	53-127
4-Chloro-3-methylphenol	34.1		ug/L	60.000	10.0 U	57	22-147
4-Chlorophenyl Phenyl Ether	37.7		ug/L	60.000	10.0 U	63	25-158
3- and/or 4-Methylphenol	41.5		ug/L	60.000	10.0 U	69	40-110
4-Nitrophenol	47.8		ug/L	60.000	25.0 U	80	1-132
Acenaphthene	36.2		ug/L	60.000	10.0 U	60	47-145
Acenaphthylene	38.3		ug/L	60.000	10.0 U	64	33-145
Anthracene	36.0		ug/L	60.000	10.0 U	60	27-133
Benz[a]anthracene	37.1		ug/L	60.000	10.0 U	62	33-143
Benzidine	0.00	U	ug/L	60.000	50.0 U	*	1-180
Benzo[a] pyrene	35.8		ug/L	60.000	10.0 U	60	50-140
Benzo[b] fluoranthene	36.9		ug/L	60.000	10.0 U	62	50-140
Benzo[g,h,i] perylene	35.7		ug/L	60.000	10.0 U	60	50-140
Benzo[k] fluoranthene	35.6		ug/L	60.000	10.0 U	59	50-140
Bis(2-chloroethoxy) methane	29.2		ug/L	60.000	10.0 U	49	33-184
Bis(2-chloroethyl) ether	33.5		ug/L	60.000	10.0 U	56	12-158
Bis(2-chloroisopropyl) ether	33.9		ug/L	60.000	10.0 U	57	36-166
Bis(2-ethylhexyl) phthalate	39.8		ug/L	60.000	10.0 U	66	8-158
Butyl Benzyl Phthalate	37.8		ug/L	60.000	10.0 U	63	1-152
Chrysene	38.1		ug/L	60.000	10.0 U	64	17-168
Dibenz[a,h]anthracene	36.2		ug/L	60.000	10.0 U	60	1-227

000000038



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WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-138
Project Number: K3963
Project Manager: Joan Kessner

Reported:
08/21/2012 08:31

Semivolatile Organic Compounds by EPA 625 - Quality Control
Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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Batch L208047 - EPA 625 Cont.

Matrix Spike (L208047-MS1)	Source: 1208013-01	Prepared: 08/08/2012 Analyzed: 08/14/2012					
Diethyl Phthalate	38.1		ug/L	60.000	10.0 U	63	1-114
Dimethyl Phthalate	35.1		ug/L	60.000	10.0 U	58	50-140
Di-n-butyl Phthalate	35.6		ug/L	60.000	10.0 U	59	40-150
Di-n-octyl Phthalate	39.7		ug/L	60.000	10.0 U	66	50-150
Fluoranthene	36.9		ug/L	60.000	10.0 U	62	26-137
Fluorene	37.9		ug/L	60.000	10.0 U	63	59-121
Hexachlorobenzene	36.8		ug/L	60.000	10.0 U	61	1-152
Hexachlorobutadiene	22.1		ug/L	60.000	10.0 U	37	24-116
Hexachlorocyclopentadiene	19.4		ug/L	60.000	10.0 U	32	1-180
Hexachloroethane	17.7		ug/L	60.000	10.0 U	29*	40-113
Indeno[1,2,3-cd]pyrene	36.4		ug/L	60.000	10.0 U	61	1-171
Isophorone	29.7		ug/L	60.000	10.0 U	49	21-196
Naphthalene	27.5		ug/L	60.000	10.0 U	46	21-133
Nitrobenzene	28.0		ug/L	60.000	10.0 U	47	35-180
N-Nitrosodimethylamine	31.1		ug/L	60.000	10.0 U	52	1-180
N-Nitrosodi-n-propylamine	36.6		ug/L	60.000	10.0 U	61	40-120
N-Nitrosodiphenylamine	36.6		ug/L	60.000	10.0 U	61	1-180
Pentachlorophenol	53.7		ug/L	60.000	25.0 U	89	14-176
Phenanthrene	37.0		ug/L	60.000	10.0 U	62	54-120
Phenol	37.8		ug/L	60.000	10.0 U	63	5-112
Pyrene	37.2		ug/L	60.000	10.0 U	62	52-115
1,2-Diphenylhydrazine	36.7		ug/L	60.000	10.0 U	61	50-110
<i>Surrogate: 2-Fluorophenol</i>	40.9		ug/L	75.000		55	21-100
<i>Surrogate: Phenol-d5</i>	46.2		ug/L	75.000		62	10-94
<i>Surrogate: Nitrobenzene-d5</i>	25.3		ug/L	50.000		51	35-114
<i>Surrogate: 2-Fluorobiphenyl</i>	28.8		ug/L	50.000		58	43-116
<i>Surrogate: 2,4,6-Tribromophenol</i>	50.2		ug/L	75.000		67	10-123
<i>Surrogate: p-Terphenyl-d14</i>	14.0		ug/L	50.000		28*	33-141

PREPARATION BENCH SHEET

L208047

Printed: 8/21/2012 8:26:39AM

Lionville Laboratory

Matrix: Water

Lab Number	Analysis	Prepared using: Extraction - EPA 625 Cont.							Surrogate used: 1200845
		Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	
1208013-01	625 SVOC	08/08/2012 13:00	1000	1		500		WC-Hanford, Inc.	WCH 625
1208013-01	8270C TCL SVOC	08/08/2012 13:00	1000	1		500		WC-Hanford, Inc.	Added for BatchQC in: L208047
1208025-03	8270C TCL SVOC	08/08/2012 13:00	1000	1		500		URS/CH2M Oak Ridge (UCOR)	Table 3, REPORT @LOD
1208025-08	8270C TCL SVOC	08/08/2012 13:00	1000	1		500		URS/CH2M Oak Ridge (UCOR)	Table 3, REPORT @LOD
1208025-14	625 SVOC	08/08/2012 13:00	1000	1		500		URS/CH2M Oak Ridge (UCOR)	Added for BatchQC in: L208047
1208025-14	8270C TCL SVOC	08/08/2012 13:00	1000	1		500		URS/CH2M Oak Ridge (UCOR)	Table 3, REPORT @LOD
1208025-19	8270C TCL SVOC	08/08/2012 13:00	1000	1		500		URS/CH2M Oak Ridge (UCOR)	Table 3, REPORT @LOD
1208025-25	8270C TCL SVOC	08/08/2012 13:00	1000	1		500		URS/CH2M Oak Ridge (UCOR)	Table 3, REPORT @LOD
1208025-31	8270C TCL SVOC	08/08/2012 13:00	1000	1		500		URS/CH2M Oak Ridge (UCOR)	Table 3, REPORT @LOD
L208047-BLK1	QC	08/08/2012 13:00	1000	1		500			WCH 625
L208047-BLK2	QC	08/08/2012 13:00	1000	1		500			Table 3, REPORT @LOD
L208047-BS1	QC	08/08/2012 13:00	1000	1	1200843	600	500		WCH 625
L208047-BS2	QC	08/08/2012 13:00	1000	1	1200843	600	500		Table 3, REPORT @LOD
L208047-BSD1	QC	08/08/2012 13:00	1000	1	1200843	600	500		WCH 625
L208047-BSD2	QC	08/08/2012 13:00	1000	1	1200843	600	500		Table 3, REPORT @LOD
L208047-MS1	QC	08/08/2012 13:00	1000	1	1200843	1208013-01	600	500	WCH 625
L208047-MS2	QC	08/08/2012 13:00	500	1	1200843	1208025-14	600	500	Table 3, REPORT @LOD
L208047-MSD2	QC	08/08/2012 13:00	500	1	1200843	1208025-14	600	500	Table 3, REPORT @LOD

Add'l Blk 2 B52 B502 Adjusted prep method Prequal

Extracts Relinquished By

Date Extracts Received By

Date

PREPARATION BENCH SHEET

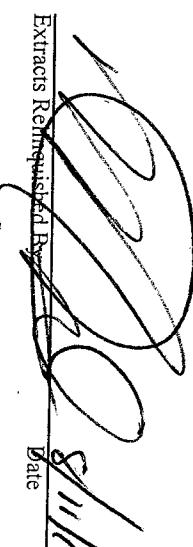
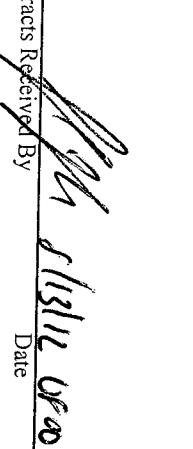
L208047

Lionville Laboratory

Printed: 8/1/2012 12:46:44PM

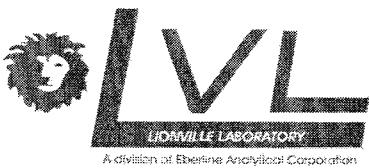
Matrix: Water

Lab Number	Analysis	Prepared using: SVOC/GC/MS - SW 3520C						Surrogate used: 1200845
		Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	
L208013-01	625 SVOC	08/08/2012 13:00	1000	1		500		WC-Hanford, Inc.
L208013-01	8270C TCL SVOC	08/08/2012 13:00	1000	1		500		Added for BatchQC in: L208047
L208025-03	8270C TCL SVOC	08/08/2012 13:00	1000	1		500		URS/CH2M Oak Ridge (UCOR)
L208025-08	8270C TCL SVOC	08/08/2012 13:00	1000	1		500		REPORT @LOD
L208025-14	625 SVOC	08/08/2012 13:00	1000	1		500		URS/CH2M Oak Ridge (UCOR)
L208025-14	8270C TCL SVOC	08/08/2012 13:00	1000	1		500		Added for BatchQC in: L208047
L208025-19	8270C TCL SVOC	08/08/2012 13:00	1000	1		500		URS/CH2M Oak Ridge (UCOR)
L208025-25	8270C TCL SVOC	08/08/2012 13:00	1000	1		500		REPORT @LOD
L208025-31	8270C TCL SVOC	08/08/2012 13:00	1000	1		500		URS/CH2M Oak Ridge (UCOR)
L208047-BLK1	QC	08/08/2012 13:00	1000	1		500		REPORT @LOD
L208047-BS1	QC	08/08/2012 13:00	1000	1		500		
L208047-BSD1	QC	08/08/2012 13:00	1000	1	1200843	600	500	
L208047-MS1	QC	08/08/2012 13:00	1000	1	1200843	1208013-01	600	
L208047-MS2	QC	08/08/2012 13:00	500	1	1200843	1208025-14	600	
L208047-MSD2	QC	08/08/2012 13:00	500	1	1200843	1208025-14	600	


 1208047-1250

 Extracts Received By _____ Date _____

PESTICIDES

000000042



264 Welsh Pool Road
Exton, PA 19341
Phone: 610-280-3000
Fax: 610-280-3041

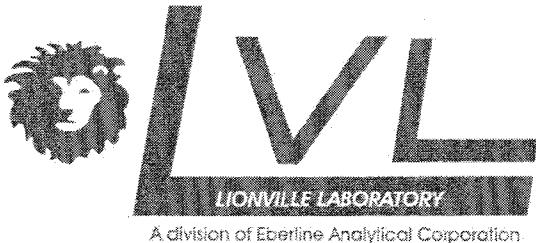
WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-138
Project Number: K3963
Project Manager: Joan Kessner

Reported:
08/23/2012 13:24

Analytical Report for Organochlorine Pesticides by EPA 608

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1PWW0-A	1208013-01	Water	08/01/2012 08:15	08/03/2012 10:00



A division of Eberline Analytical Corporation

264 Welsh Pool Road
Exton, Pennsylvania 19341
Phone (610) 280-3000
Fax (610) 280-3041

Case Narrative

Client: WC-HANFORD RC-138 K3963
LVL #: 1208013

W.O. #: 60049-001-001-0001-00
Date Received: 08-03-2012

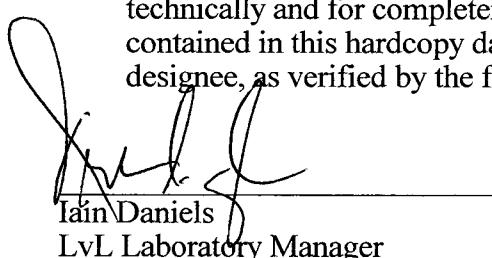
CHLORINATED PESTICIDES

One (1) water sample was collected on 08-01-2012.

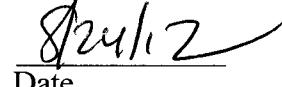
The sample and associated QC samples were extracted 08-07-2012 and analyzed 08-13-2012 according to criteria set forth in Lionville Laboratory SOPs. The extraction and analysis procedures were based on EPA Method 608. All samples received Copper-Sulfur and Sulfuric Acid cleanups based on methods 3660A and 3665A.

Lionville Laboratory (LvL) is NELAP accredited by the State of Pennsylvania. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager. LvL certifies that all test results meet the requirements of NELAC with any exception noted in the following statements:

1. The results presented in this report are derived from a sample that met LvL's sample acceptance policy.
2. All required holding times for extraction and analysis have been met.
3. All obtainable surrogate recoveries were within acceptance criteria.
4. The method blank was below the reporting limit for all target compounds.
5. All blank spike recoveries were within acceptance criteria.
6. Matrix QC was not performed due to insufficient sample volume.
7. All initial calibrations associated with this data set were within acceptance criteria.
8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
9. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the laboratory manager or a designee, as verified by the following signature.



Iain Daniels
LvL Laboratory Manager



8/24/12

Date

Lionville Laboratory Sample Discrepancy Report (SDR) SDR #: 12EX005

Initiator: Marty J. H.
Date: 8/9/12
Client: TWU

Batch: 1208013 Matrix: 1208013 Parameter: 608
Samples: 001-5 (Int Spike) Matrix: H₂O
Method: SW846/MCAWW/CLP/ Prep Batch: L1208044

1. Reason for SDR

- COC Discrepancy Tech Profile Error Client Request Sampler Error on C-O-C
- Transcription Error Wrong Test Code Other _____

b. General Discrepancy

- Missing Sample/Extract Container Broken Wrong Sample Pulled Label ID's Illegible
- Hold Time Exceeded Insufficient Sample Preservation Wrong Received Past Hold
- Improper Bottle Type Not Amenable to Analysis

Note: Verified by [Log-In] or [Prep Group] (circle)...signature/date: 1208013-01-5 for 608

c. Problem (Include all relevant specific results; attach data if necessary)

Concentration tube broke lost 1208013-01-5 for 608
Test

Insufficient sample to re-extract.

2. Known or Probable Causes(s)

3. Discussion and Proposed Action

Other Description:

- Re-log
- Entire Batch
- Following Samples: _____
- Re-leach
- Re-extract
- Re-digest
- Revise EDD
- Change Test Code to _____
- Place On/Take Off Hold (circle)

Narrate

4. Project Manager Instructions...signature/date:

8/9/12

- Concur with Proposed Action
- Disagree with Proposed Action; See Instruction
- Include in Case Narrative
- Client Contacted:
- Date/Person _____
- Add _____
- Cancel _____

5. Final Action...signature/date:

Other Explanation:

- Verified re-[log][leach][extract][digest][analysis] (circle)
- Included in Case Narrative
- Hard Copy COC Revised
- Electronic COC Revised
- EDD Corrections Completed

When Final Action has been recorded, forward original to QA for disposition.

Route

- Lab Manager: Daniels
- Project Mgr (circle): Johnson / Stone
- Sample Prep (circle): Ford
- Log-in: King

Route

- Metals: Welsh / _____
- Inorganic: Perrone / _____
- GC/LC: Carey / _____
- MS VOA: Rubino / _____
- MS BNA: Carden / _____
- Other: _____



GLOSSARY OF DATA

DATA QUALIFIERS

- U** = Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).
- J** = Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- B** = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.
- E** = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- I** = Interference.
- .I** = Indicates an interference on one analytical column only. Result is reported from remaining analytical column.
- P** = This flag is used for a dual column analysis (i.e. pesticides/PCB/herbicides) when there is greater than 40% difference for detected concentrations between the two GC columns; the lower of the two values is reported on Form 1 and flagged with a "P".
- D** = This flag identifies all compounds identified in an analysis at a secondary dilution factor.
- C** = This flag applies to a compound that has been confirmed by GC/MS.

ABBREVIATIONS

- BS** = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.
- BSD** = Indicates blank spike duplicate.
- MS** = Indicates matrix spike.
- MSD** = Indicates matrix spike duplicate.
- DL** = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.
- NA** = Not Applicable.
- DF** = Dilution Factor.
- NR** = Not Required.
- NS** = Not Spiked.
- SP** = Indicates Spiked Compound.
- NPM** = No pattern match for multi-component target analytes.



264 Welsh Pool Road
Exton, PA 19341
Phone: 610-280-3000
Fax: 610-280-3041

WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-138
Project Number: K3963
Project Manager: Joan Kessner

Reported:
08/23/2012 13:24

J1PWW0-A
1208013-01 (Water)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Organochlorine Pesticides by EPA 608

alpha-BHC	0.0500	U	0.0500	ug/L	1	L208044	08/07/2012	08/13/2012	EPA 608
gamma-BHC	0.0500	U	0.0500	ug/L	1	L208044	08/07/2012	08/13/2012	EPA 608
delta-BHC	0.0500	U	0.0500	ug/L	1	L208044	08/07/2012	08/13/2012	EPA 608
Heptachlor	0.0500	U	0.0500	ug/L	1	L208044	08/07/2012	08/13/2012	EPA 608
Aldrin	0.0500	U	0.0500	ug/L	1	L208044	08/07/2012	08/13/2012	EPA 608
Heptachlor epoxide	0.0500	U	0.0500	ug/L	1	L208044	08/07/2012	08/13/2012	EPA 608
Endosulfan I	0.0500	U	0.0500	ug/L	1	L208044	08/07/2012	08/13/2012	EPA 608
4,4'-DDE	0.0500	U	0.0500	ug/L	1	L208044	08/07/2012	08/13/2012	EPA 608
Dieldrin	0.0500	U	0.0500	ug/L	1	L208044	08/07/2012	08/13/2012	EPA 608
Endrin	0.0500	U	0.0500	ug/L	1	L208044	08/07/2012	08/13/2012	EPA 608
4,4'-DDD	0.0500	U	0.0500	ug/L	1	L208044	08/07/2012	08/13/2012	EPA 608
Endosulfan II	0.0500	U	0.0500	ug/L	1	L208044	08/07/2012	08/13/2012	EPA 608
4,4'-DDT	0.0500	U	0.0500	ug/L	1	L208044	08/07/2012	08/13/2012	EPA 608
Endrin aldehyde	0.0500	U	0.0500	ug/L	1	L208044	08/07/2012	08/13/2012	EPA 608
Endosulfan sulfate	0.0500	U	0.0500	ug/L	1	L208044	08/07/2012	08/13/2012	EPA 608
Toxaphene	0.500	U	0.500	ug/L	1	L208044	08/07/2012	08/13/2012	EPA 608
Chlordane	0.100	U	0.100	ug/L	1	L208044	08/07/2012	08/13/2012	EPA 608
<i>Surrogate: Tetrachloro-meta-xylene</i>	104 %		40-134			L208044	08/07/2012	08/13/2012	EPA 608
<i>Surrogate: Decachlorobiphenyl</i>	102 %		21-129			L208044	08/07/2012	08/13/2012	EPA 608



264 Welsh Pool Road
Exton, PA 19341
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Fax: 610-280-3041

WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-138
Project Number: K3963
Project Manager: Joan Kessner

Reported:
08/23/2012 13:24

Organochlorine Pesticides by EPA 608 - Quality Control
Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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Batch L208044 - EPA 608

Blank (L208044-BLK1)

Prepared: 08/07/2012 Analyzed: 08/13/2012

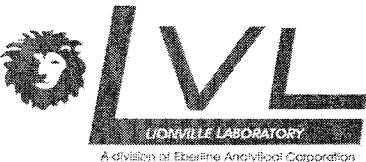
alpha-BHC	0.0500	U	0.0500	ug/L					
gamma-BHC	0.0500	U	0.0500	ug/L					
delta-BHC	0.0500	U	0.0500	ug/L					
Heptachlor	0.0500	U	0.0500	ug/L					
Aldrin	0.0500	U	0.0500	ug/L					
Heptachlor epoxide	0.0500	U	0.0500	ug/L					
Endosulfan I	0.0500	U	0.0500	ug/L					
4,4'-DDE	0.0500	U	0.0500	ug/L					
Dieldrin	0.0500	U	0.0500	ug/L					
Endrin	0.0500	U	0.0500	ug/L					
4,4'-DDD	0.0500	U	0.0500	ug/L					
Endosulfan II	0.0500	U	0.0500	ug/L					
4,4'-DDT	0.0500	U	0.0500	ug/L					
Endrin aldehyde	0.0500	U	0.0500	ug/L					
Endosulfan sulfate	0.0500	U	0.0500	ug/L					
Toxaphene	0.500	U	0.500	ug/L					
Chlordane	0.100	U	0.100	ug/L					
<i>Surrogate: Tetrachloro-meta-xylene</i>	0.962			ug/L	1.0001	96.2	40-134		
<i>Surrogate: Decachlorobiphenyl</i>	1.01			ug/L	1.0000	101	21-129		

LCS (L208044-BS1)

Prepared: 08/07/2012 Analyzed: 08/13/2012

alpha-BHC	0.947	0.0500	ug/L	1.0000	94.7	37-134
gamma-BHC	0.889	0.0500	ug/L	1.0000	88.9	32-127
delta-BHC	0.920	0.0500	ug/L	1.0000	92.0	19-140
Heptachlor	1.03	0.0500	ug/L	1.0000	103	34-111
Aldrin	0.875	0.0500	ug/L	1.0000	87.5	42-122
Heptachlor epoxide	0.972	0.0500	ug/L	1.0000	97.2	37-142
Endosulfan I	0.982	0.0500	ug/L	1.0000	98.2	45-153
4,4'-DDE	0.946	0.0500	ug/L	1.0000	94.6	30-145
Dieldrin	0.905	0.0500	ug/L	1.0000	90.5	36-146
Endrin	1.01	0.0500	ug/L	1.0000	101	30-147
4,4'-DDD	0.950	0.0500	ug/L	1.0000	95.0	31-141
Endosulfan II	1.03	0.0500	ug/L	1.0000	103	0-202
4,4'-DDT	0.893	0.0500	ug/L	1.0000	89.3	25-160
Endrin aldehyde	1.01	0.0500	ug/L	1.0000	101	74-131
Endosulfan sulfate	0.985	0.0500	ug/L	1.0000	98.5	26-144
<i>Surrogate: Tetrachloro-meta-xylene</i>	0.945		ug/L	1.0001	94.5	40-134

000000048



264 Welsh Pool Road
Exton, PA 19341
Phone: 610-280-3000
Fax: 610-280-3041

WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-138
Project Number: K3963
Project Manager: Joan Kessner

Reported:
08/23/2012 13:24

Organochlorine Pesticides by EPA 608 - Quality Control
Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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Batch L208044 - EPA 608

LCS (L208044-BS1)

Prepared: 08/07/2012 Analyzed: 08/13/2012

Surrogate: *Decachlorobiphenyl* 0.952 ug/L 1.0000 95.2 21-129

PREPARATION BENCH SHEET

Revision for PCB BIK
5208.13.12

L208044

Printed: 8/13/2012 12:03:38PM

Lionville Laboratory

Matrix: Water

Lab Number	Analysis	Prepared	Prepared using: GC - EPA 608					Surrogate used: 120050000000
			Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	
1208013-01	608 Chlorinated Pesticides	08/07/2012 12:55	1000	10			250	WC-Hanford, Inc.
1208013-01	608 PCBs	08/07/2012 12:55	1000	10			250	WC-Hanford, Inc.
L208044-BLK1	QC	08/07/2012 12:55	1000	10			250	<i>pest</i>
L208044-BLK2	QC	08/07/2012 12:55	1000	10			250	<i>PCB</i>
L208044-BS1	QC	08/07/2012 12:55	1000	10	1200903		250	<i>pest</i>
L208044-BS2	QC	08/07/2012 12:55	1000	10	1200902		250	<i>PCB</i>
L208044-MS2	QC	08/07/2012 12:55	500	10	1200902	1208013-01	250	<i>PCB</i>

Extracts Relinquished By _____

Date _____

Extracts Received By _____

Date _____

PREPARATION BENCH SHEET

L208044

Lionville Laboratory

Printed: 8/9/2012 2:00:08PM

Matrix: Water

Prepared using: GC - EPA 608

Surrogate used: 1200502

Lab Number	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul	ul	Surrogate	Client	Extraction Comments
L208013-01	608 Chlorinated Pesticides	08/07/2012 12:55	1000	10					250	WC-Hanford, Inc.	
L208013-01	608 PCBs	08/07/2012 12:55	1000	10					250	WC-Hanford, Inc.	
L208044-BLK1	QC	08/07/2012 12:55	1000	10					250		
L208044-BS1	QC	08/07/2012 12:55	1000	10					250		
L208044-BS2	QC	08/07/2012 12:55	1000	10	1200902				250		
L208044-MS2	QC	08/07/2012 12:55	500	10	1200902	1208013-01			250		

no MS - 1208013-01 lost
lost see SDR.

Cleared 08.13.12. 7:05
C lot # 516w031

[Handwritten Signature]
 Extracts Relinquished By _____ Date _____
 Extracts Received By _____ Date _____
 Schak 08.13.12 7:05

PCBS

00000052



264 Welsh Pool Road
Exton, PA 19341
Phone: 610-280-3000
Fax: 610-280-3041

WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-138
Project Number: K3963
Project Manager: Joan Kessner

Reported:
08/16/2012 20:10

Analytical Report for PCBs by EPA 608

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1PWW0-A	1208013-01	Water	08/01/2012 08:15	08/03/2012 10:00



A division of Eberline Analytical Corporation

264 Welsh Pool Road
Exton, Pennsylvania 19341
Phone (610) 280-3000
Fax (610) 280-3041

Case Narrative

Client: WC-HANFORD RC-138 K3963
LVL #: 1208013

W.O. #: 60049-001-001-0001-00
Received: 08-03-2012

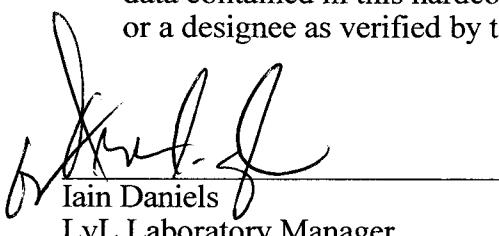
PCBs

One (1) water sample was collected on 08-01-2012.

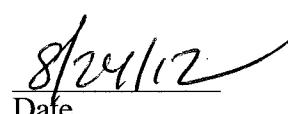
The sample and associated QC samples were extracted 08-07-2012 and analyzed 08-15-2012 according to criteria set forth in Lionville Laboratory SOPs. The extraction and analysis procedures were based on EPA Method 608. All samples received Copper-Sulfur and Sulfuric Acid cleanups based on methods 3660A and 3665A.

Lionville Laboratory (LvL) is NELAP accredited by the State of Pennsylvania. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager. LvL certifies that all test results meet the requirements of NELAC with any exception noted in the following statements:

1. The results presented in this report are derived from samples that met LvL's sample acceptance policy.
2. All required holding times for extraction and analysis have been met.
3. All obtainable surrogate recoveries were within acceptance criteria.
4. The method blank was below the reporting for all target compounds.
5. All blank spike recoveries were within acceptance criteria.
6. All matrix spike recoveries were within acceptance criteria. A matrix spike duplicate was not analyzed due to insufficient sample volume.
7. All initial calibrations associated with this data set were within acceptance criteria.
8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
9. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the laboratory manager or a designee as verified by the following signature.



Iain Daniels
LvL Laboratory Manager



8/24/12
Date



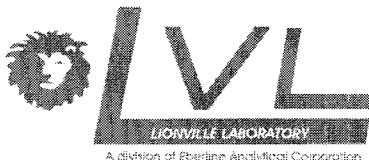
GLOSSARY OF DATA

DATA QUALIFIERS

- U** = Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).
- J** = Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- B** = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.
- E** = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- I** = Interference.
- .I** = Indicates an interference on one analytical column only. Result is reported from remaining analytical column.
- P** = This flag is used for a dual column analysis (i.e. pesticides/PCB/herbicides) when there is greater than 40% difference for detected concentrations between the two GC columns; the lower of the two values is reported on Form 1 and flagged with a "P".
- D** = This flag identifies all compounds identified in an analysis at a secondary dilution factor.
- C** = This flag applies to a compound that has been confirmed by GC/MS.

ABBREVIATIONS

- BS** = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.
- BSD** = Indicates blank spike duplicate.
- MS** = Indicates matrix spike.
- MSD** = Indicates matrix spike duplicate.
- DL** = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.
- NA** = Not Applicable.
- DF** = Dilution Factor.
- NR** = Not Required.
- NS** = Not Spiked.
- SP** = Indicates Spiked Compound.
- NPM** = No pattern match for multi-component target analytes.



264 Welsh Pool Road
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Phone: 610-280-3000
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WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-138
Project Number: K3963
Project Manager: Joan Kessner

Reported:
08/16/2012 20:10

J1PWW0-A
1208013-01 (Water)

Lionville Laboratory									
PCBs by EPA 608									
Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Aroclor 1016	0.400		U	0.400	ug/L	1	L208044	08/07/2012	08/15/2012
Aroclor 1221	0.400		U	0.400	ug/L	1	L208044	08/07/2012	08/15/2012
Aroclor 1232	0.400		U	0.400	ug/L	1	L208044	08/07/2012	08/15/2012
Aroclor 1242	0.400		U	0.400	ug/L	1	L208044	08/07/2012	08/15/2012
Aroclor 1248	0.400		U	0.400	ug/L	1	L208044	08/07/2012	08/15/2012
Aroclor 1254	0.400		U	0.400	ug/L	1	L208044	08/07/2012	08/15/2012
Aroclor 1260	0.400		U	0.400	ug/L	1	L208044	08/07/2012	08/15/2012
Aroclor 1262	0.400		U	0.400	ug/L	1	L208044	08/07/2012	08/15/2012
Aroclor 1268	0.400		U	0.400	ug/L	1	L208044	08/07/2012	08/15/2012
<i>Surrogate: Tetrachloro-meta-xylene</i>	93 %			45-117			L208044	08/07/2012	08/15/2012
<i>Surrogate: Decachlorobiphenyl</i>	92 %			22-131			L208044	08/07/2012	08/15/2012



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WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-138
Project Number: K3963
Project Manager: Joan Kessner

Reported:
08/16/2012 20:10

PCBs by EPA 608 - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L208044 - EPA 608									
Blank (L208044-BLK2) Prepared: 08/07/2012 Analyzed: 08/15/2012									
Aroclor 1016	0.400	U	0.400	ug/L					
Aroclor 1221	0.400	U	0.400	ug/L					
Aroclor 1232	0.400	U	0.400	ug/L					
Aroclor 1242	0.400	U	0.400	ug/L					
Aroclor 1248	0.400	U	0.400	ug/L					
Aroclor 1254	0.400	U	0.400	ug/L					
Aroclor 1260	0.400	U	0.400	ug/L					
Aroclor 1262	0.400	U	0.400	ug/L					
Aroclor 1268	0.400	U	0.400	ug/L					
<i>Surrogate: Tetrachloro-meta-xylene</i>	0.945			ug/L	1.0001	94	45-117		
<i>Surrogate: Decachlorobiphenyl</i>	0.835			ug/L	1.0000	84	22-131		
LCS (L208044-BS2) Prepared: 08/07/2012 Analyzed: 08/15/2012									
Aroclor 1016	4.00	0.400	ug/L	5.0000	80	50-114			
Aroclor 1260	4.50	0.400	ug/L	5.0000	90	8-127			
<i>Surrogate: Tetrachloro-meta-xylene</i>	0.983		ug/L	1.0001	98	45-117			
<i>Surrogate: Decachlorobiphenyl</i>	0.933		ug/L	1.0000	93	22-131			
Matrix Spike (L208044-MS2) Source: 1208013-01 Prepared: 08/07/2012 Analyzed: 08/15/2012									
Aroclor 1016	8.20	0.800	ug/L	10.000	0.400 U	82	50-114		
Aroclor 1260	8.83	0.800	ug/L	10.000	0.400 U	88	8-127		
<i>Surrogate: Tetrachloro-meta-xylene</i>	1.88		ug/L	2.0002		94	45-117		
<i>Surrogate: Decachlorobiphenyl</i>	1.81		ug/L	2.0000		90	22-131		

PREPARATION BENCH SHEET

Revision for PCB Blank

52 08.13.10

L208044	
Lionville Laboratory	

Printed: 8/13/2012 12:03:27PM

Matrix: Water**Prepared using: GC - EPA 608****Surrogate used: 1200502**

Lab Number	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
L208013-01	608 Chlorinated Pesticides	08/07/2012 12:55	1000	10			250		WC-Hanford, Inc.	
L208013-01	608 PCBs	08/07/2012 12:55	1000	10			250		WC-Hanford, Inc.	
L208044-BLK1	QC	08/07/2012 12:55	1000	10			250			
L208044-BLK2	QC	08/07/2012 12:55	1000	10			250			
L208044-BS1	QC	08/07/2012 12:55	1000	10	1200903		250			
L208044-BS2	QC	08/07/2012 12:55	1000	10	1200902		250			
L208044-MS2	QC	08/07/2012 12:55	500	10	1200902	1208013-01	250	250		

Extracts Relinquished By _____

Date _____

Extracts Received By _____

Date _____

PREPARATION BENCH SHEET

L208044

Lionville Laboratory

Printed: 8/9/2012 2:00:08PM

Matrix: Water

Prepared using: GC - EPA 608

Surrogate used: 1200502

Lab Number	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
L208013-01	608 Chlorinated Pesticides	08/07/2012 12:55	1000	10				250	WC-Hanford, Inc.	
L208013-01	608 PCBs	08/07/2012 12:55	1000	10				250	WC-Hanford, Inc.	
L208044-BLK1	QC	08/07/2012 12:55	1000	10				250		
L208044-BS1	QC	08/07/2012 12:55	1000	10	1200903			250		
L208044-BS2	QC	08/07/2012 12:55	1000	10	1200902			250		
L208044-MS2	QC	08/07/2012 12:55	500	10	1200902	1208013-01	250	250		

No MS - 1208013-01 lost
lost see SDR.

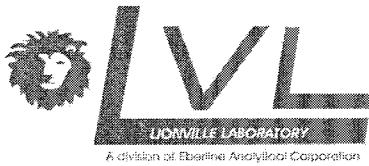
Closed 08.13.12 7:05
On lot # 516W031

0000000059

[Handwritten Signature]
SP/9/12/12 Schak 08.13.12 7:05
 Extracts Reinquished By _____ Date _____
 Extracts Received By _____ Date _____

METALS

000000060



264 Welsh Pool Road
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Phone: 610-280-3000
Fax: 610-280-3041

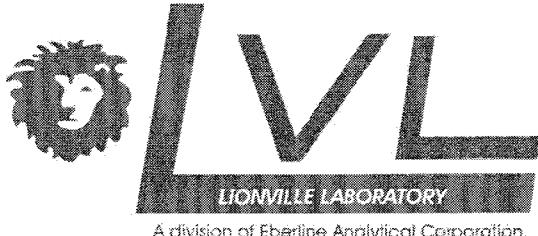
WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-138
Project Number: K3963
Project Manager: Joan Kessner

Reported:
08/23/2012 12:56

Analytical Report for Metals by EPA 200 series

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1PWW0-A	1208013-01	Water	08/01/2012 08:15	08/03/2012 10:00



A division of Eberline Analytical Corporation

264 Welsh Pool Road
Exton, Pennsylvania 19341
Phone (610) 280-3000
Fax (610) 280-3041

Case Narrative

Client: WC-HANFORD RC-138
LVL#: 1208013
SDG/SAF#: K3963/RC-138

W.O.#: 60049-001-001-0001-00
Date Received: 08-03-12

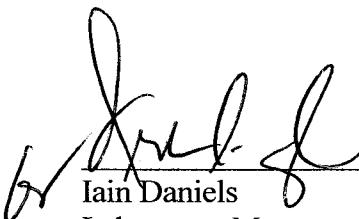
METALS

The following is a summary of the QC results accompanying the sample results. Lionville Laboratory (LvL) certifies that all test results meet the requirements of NELAC except as noted below.

1. This narrative covers the analysis of 1 water sample.
2. The sample was prepared and analyzed in accordance with methods listed on the data report forms.
3. All analyses were performed within the required holding times.
4. Please refer to the Sample Receipt Check List for any sample discrepancies in LvL's sample acceptance policy.
5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within control limits.
6. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the LOQ).
7. All preparation/method blanks were within method criteria. {less than the Limit of Quantitation or samples greater than 20X MB value}.
8. All ICP Interference Check Standards were within control limits.
9. All laboratory control samples (LCS) were within the 85-115% control limits.
10. All matrix spike (MS) recoveries were within the 70-130% control limits.
11. All duplicate analysis were within the 20% Relative Percent Difference (RPD) control limits. The \pm 20% RPD control limit applies to sample results greater than ten times the MDL. The sample results for Arsenic, Lead, and Molybdenum were less than ten times the MDL.
12. For the purposes of this report, the data has been reported to the Limit of Detection (LOD). Values between the LOD and the Limit of Quantitation (LOQ) are acquired in a region of

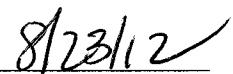
less-certain quantification.

13. LvL is NELAP accredited by the State of Pennsylvania. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.
14. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.



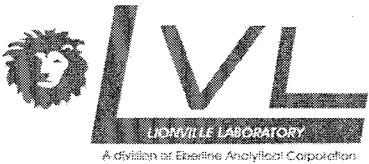
Iain Daniels
Laboratory Manager
Lionville Laboratory

alm/m08-013



8/23/12

Date



264 Welsh Pool Road
Exton, PA 19341
Phone: 610-280-3000
Fax: 610-280-3041

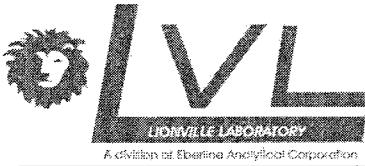
WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-138
Project Number: K3963
Project Manager: Joan Kessner

Reported:
08/23/2012 12:56

Notes and Definitions

U	Analyte included in the analysis, but not detected
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).
B	Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag)
*	Value outside QC acceptance criteria
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
wet	Sample results reported on a wet weight basis
RPD	Relative Percent Difference



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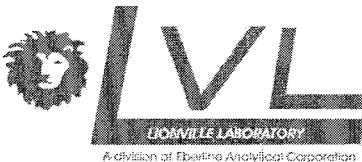
WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-138
Project Number: K3963
Project Manager: Joan Kessner

Reported:
08/23/2012 12:56

J1PWW0-A
1208013-01 (Water)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method		
Lionville Laboratory											
Metals by EPA 200 series											
Antimony	5.00	U	5.00	ug/L	1	L208177	08/20/2012	08/22/2012	EPA200.7		
Arsenic	2.12	B	5.00	ug/L	1	L208177	08/20/2012	08/22/2012	EPA200.7		
Beryllium	0.500	U	0.500	ug/L	1	L208177	08/20/2012	08/22/2012	EPA200.7		
Cadmium	0.500	U	0.500	ug/L	1	L208177	08/20/2012	08/22/2012	EPA200.7		
Chromium	0.480	B	2.00	ug/L	1	L208177	08/20/2012	08/22/2012	EPA200.7		
Copper	500		5.00	ug/L	1	L208177	08/20/2012	08/22/2012	EPA200.7		
Lead	1.28	B	5.00	ug/L	1	L208177	08/20/2012	08/22/2012	EPA200.7		
Molybdenum	1.01	B	2.00	ug/L	1	L208177	08/20/2012	08/22/2012	EPA200.7		
Nickel	2.55		2.00	ug/L	1	L208177	08/20/2012	08/22/2012	EPA200.7		
Selenium	10.0	U	10.0	ug/L	1	L208177	08/20/2012	08/22/2012	EPA200.7		
Silver	2.00	U	2.00	ug/L	1	L208177	08/20/2012	08/22/2012	EPA200.7		
Thallium	5.00	U	5.00	ug/L	1	L208177	08/20/2012	08/22/2012	EPA200.7		
Zinc	64.6		20.0	ug/L	1	L208177	08/20/2012	08/22/2012	EPA200.7		
Mercury	0.200	U	0.200	ug/L	1	L208172	08/20/2012	08/22/2012	EPA 245.1		



264 Welsh Pool Road
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WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-138
Project Number: K3963
Project Manager: Joan Kessner

Reported:
08/23/2012 12:56

Metals by EPA 200 series - Quality Control
Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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Batch L208172 - EPA 245.1

Blank (L208172-BLK1)	Prepared: 08/20/2012 Analyzed: 08/22/2012												
Mercury	0.200	U	0.200	ug/L									
LCS (L208172-BS1)	Prepared: 08/20/2012 Analyzed: 08/22/2012												
Mercury	3.66		0.200	ug/L	4.0000	92	85-115						
Duplicate (L208172-DUP1)	Source: 1208013-01		Prepared: 08/20/2012 Analyzed: 08/22/2012										
Mercury	0.200	U	0.200	ug/L	0.200 U					20			
Matrix Spike (L208172-MS1)	Source: 1208013-01		Prepared: 08/20/2012 Analyzed: 08/22/2012										
Mercury	3.59		0.200	ug/L	4.0000	0.200 U	90	70-130					

Batch L208177 - EPA 200.7

Blank (L208177-BLK1)	Prepared: 08/20/2012 Analyzed: 08/22/2012									
Antimony	5.00	U	5.00	ug/L						
Arsenic	5.00	U	5.00	ug/L						
Beryllium	0.500	U	0.500	ug/L						
Cadmium	0.500	U	0.500	ug/L						
Chromium	0.434	B	2.00	ug/L						
Copper	5.00	U	5.00	ug/L						
Lead	5.00	U	5.00	ug/L						
Molybdenum	2.00	U	2.00	ug/L						
Nickel	2.00	U	2.00	ug/L						
Selenium	10.0	U	10.0	ug/L						
Silver	2.00	U	2.00	ug/L						
Thallium	5.00	U	5.00	ug/L						
Zinc	20.0	U	20.0	ug/L						



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Richland WA, 99354

Project: RC-138
Project Number: K3963
Project Manager: Joan Kessner

Reported:
08/23/2012 12:56

Metals by EPA 200 series - Quality Control
Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
---------	-----------------------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------

Batch L208177 - EPA 200.7

LCS (L208177-BS1)		Prepared: 08/20/2012 Analyzed: 08/22/2012						
Antimony	264	5.00	ug/L	250.00	105	85-115		
Arsenic	1030	5.00	ug/L	1000.0	103	85-115		
Beryllium	25.0	0.500	ug/L	25.000	100	85-115		
Cadmium	25.5	0.500	ug/L	25.000	102	85-115		
Chromium	101	2.00	ug/L	100.00	101	85-115		
Copper	133	5.00	ug/L	125.00	107	85-115		
Lead	253	5.00	ug/L	250.00	101	85-115		
Molybdenum	510	2.00	ug/L	500.00	102	85-115		
Nickel	256	2.00	ug/L	250.00	102	85-115		
Selenium	1020	10.0	ug/L	1000.0	102	85-115		
Silver	26.0	2.00	ug/L	25.000	104	85-115		
Thallium	1010	5.00	ug/L	1000.0	101	85-115		
Zinc	264	20.0	ug/L	250.00	106	85-115		

Duplicate (L208177-DUP1)		Source: 1208013-01			Prepared: 08/20/2012 Analyzed: 08/22/2012				
Antimony	1.09	B	5.00	ug/L	5.00 U				20
Arsenic	1.71	B	5.00	ug/L	2.12		22*	20	
Beryllium	0.500	U	0.500	ug/L	0.500 U				20
Cadmium	0.114	B	0.500	ug/L	0.500 U				20
Chromium	0.409	B	2.00	ug/L	0.480		16	20	
Copper	476		5.00	ug/L	500		5	20	
Lead	1.59	B	5.00	ug/L	1.28		22*	20	
Molybdenum	0.758	B	2.00	ug/L	1.01		28*	20	
Nickel	2.44		2.00	ug/L	2.55		4	20	
Selenium	10.0	U	10.0	ug/L	10.0 U				20
Silver	2.00	U	2.00	ug/L	2.00 U				20
Thallium	5.00	U	5.00	ug/L	5.00 U				20
Zinc	71.4		20.0	ug/L	64.6		10	20	



264 Welsh Pool Road
Exton, PA 19341
Phone: 610-280-3000
Fax: 610-280-3041

WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-138
Project Number: K3963
Project Manager: Joan Kessner

Reported:
08/23/2012 12:56

Metals by EPA 200 series - Quality Control
Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
---------	-----------------------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------

Batch L208177 - EPA 200.7

Matrix Spike (L208177-MS1)	Source: 1208013-01	Prepared: 08/20/2012 Analyzed: 08/22/2012						
Antimony	266	5.00	ug/L	250.00	5.00 U	106	70-130	
Arsenic	1050	5.00	ug/L	1000.0	2.12	104	70-130	
Beryllium	25.1	0.500	ug/L	25.000	0.500 U	101	70-130	
Cadmium	25.2	0.500	ug/L	25.000	0.500 U	101	70-130	
Chromium	100	2.00	ug/L	100.00	0.480	100	70-130	
Copper	614	5.00	ug/L	125.00	500	91	70-130	
Lead	249	5.00	ug/L	250.00	1.28	99	70-130	
Molybdenum	508	2.00	ug/L	500.00	1.01	101	70-130	
Nickel	254	2.00	ug/L	250.00	2.55	101	70-130	
Selenium	1010	10.0	ug/L	1000.0	10.0 U	101	70-130	
Silver	26.0	2.00	ug/L	25.000	2.00 U	104	70-130	
Thallium	974	5.00	ug/L	1000.0	5.00 U	97	70-130	
Zinc	328	20.0	ug/L	250.00	64.6	105	70-130	

SAMPLE DIGESTION RECORD

Digestion Batch #: L208177

Date/Time Initiated: 8/20/12 19:15

Date/Time Completed: 8/21/12 01:30

Analyst: ER

Matrix (circle): Soil Water Other

Method (circle one): 3005A 3010A 3050

(200.7 (1994))

pH/Turbidity: N/A for Solids.

NOTE: All temperatures are recorded as corrected temperatures

Digested Undigested (circle one)

Balance #:

Balance Cal Verification: Y NA

Temp: 97°

BLOCK (1) 2 (circle one)

Work Order #	Spike Vol (mL)	Initial Wt/Vol (g/mL)	Final Vol (mL)	pH <2	Type: To/Sol/TC	Texture	Color / Appearance	Artifact	Turb
L208013-01		100	50	C	TOT	NA	Gray Cloudy	NA	NA
L208177-01R		50	25	C			Gray Cloudy		
L208177-MS1 01S	0.25	50	25	C			Gray Cloudy		
L208058-01		100	50	C			Green Clear		
L208177-DRL 01R		50	25	C			Green Clear		
L208177- MS2 01S	0.25	50	25	C			Green Clear		
	02	50	25	C			Green Clear		
L208177-BLK		50	25				Clear Colorless		
* BS	0.25	50	25				Clear Colorless		

TODAY 8/21/12

Spiking IDs / Expiration Date:

MS#: 1200457

Reagent IDs:

HNO₃ _____

File ID#:

Data Review By/Date:

LCS#: 1200457

HCl _____

H₂O₂ _____1:1 HNO₃ 637-066-02

1:1 HCl 637-069-01

Am 8/22/12

MERCURY PREPARATION

Analyst: MoffatDate 8/20/12Start Time/Temp: 1900/95°End Time/Temp: 2100/95°Instrument ID: HC 3.1Balance #: N/APipette Calibration (Daily) (Y)Logbook # 1143Prep Batch: L208172Worksheet: HG-082201SOP No.: ME-HgCVAABLOCK 1 2 (circle one)(3)

NOTE: All temperatures are recorded as corrected temperatures.

Lvl Work Order#	pH < 2 (Liq)	Spike Vol (mL)	Spike Conc. (µg/L)	Initial Wt. or Vol. (g or mL)	Final Sample Vol (mL)	Comments, % Solids, etc.
Blank				35	35	
0.2 mg/L	0.070			35	35	
1.0 mg/L	0.350			35	35	
2.0 mg/L	0.700			35	35	
5.0 mg/L	1.750			35	35	
10.0 mg/L	3.500			35	35	
ICV	0.0875	2.5		35	35	
CCV	0.175	5.0		35	35	
ICB/Cels				35	35	
L208172-B44		1.400	4.0	35	35	
BS1		0.775	5.0*	35	35	
1208013-01	<			35	35	
1208172-DVP1	<			35	35	
MS1	<	1.400	4.0	35	35	
1208058-01	<			35	35	
1208172-DVP2	<			35	35	
MS2	<	1.400	4.0	35	35	
1208058-02	<			35	35	

Standard:	ID	Prep Date/Time	Reviewed By/Date:
ICAL/MS	R1 1200588	8/20/12 1900	CDM 8/23/12
ICV/CCV/LCS	ICV 1200532	N/A	see book # 1143 pg1 for std traceability information

Soil LCS True Value = 1143 mg/Kg
Standard # N/A

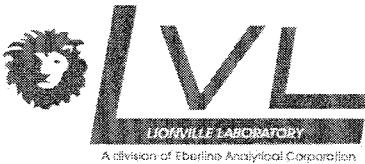
Water Matrix Spiking Solution Concentration = 0.1 µg/ml

after LCS Spiking Concentration: 1.0 µg/ml

+ BS spiked with MS

INORGANICS

000000071



264 Welsh Pool Road
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WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-138
Project Number: K3963
Project Manager: Joan Kessner

Reported:
08/27/2012 15:03

Analytical Report for Wet Chemistry

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1PWW0-A	1208013-01	Water	08/01/2012 08:15	08/03/2012 10:00



A division of Eberline Analytical Corporation

264 Welsh Pool Road
Exton, Pennsylvania 19341
Phone (610) 280-3000
Fax (610) 280-3041

Case Narrative

Client: WC-HANFORD RC-138 K3963
LVL#: 1208013

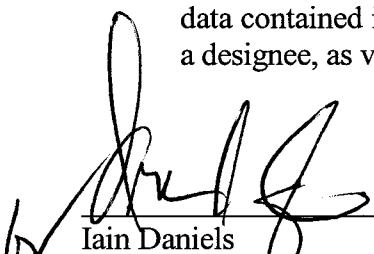
Date Received: 08-03-12

INORGANIC NARRATIVE

1. This narrative covers the analysis of 1 water sample.
2. The sample was prepared and analyzed in accordance with the method indicated on the data summary report.

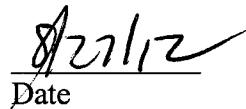
Lionville Lab (LVL) is NELAP accredited by the State of Pennsylvania. For a complete list of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager. LvL certifies that all test results meet the requirements of NELAC with any exception noted in the following statements.

3. Sample holding time as required by the method and/or contract was met.
4. The results presented in this report are derived from a sample that met LvL's sample acceptance policy.
5. The method blank was within the method criteria.
6. The Laboratory Control Samples (LCS) were within the laboratory control limits.
7. The matrix spike recovery was within the 75-125% control limits.
8. The replicate analysis was within the 20% Relative Percent Difference (RPD) control limit.
9. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard copy package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

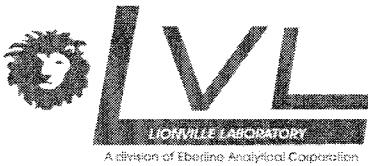


Iain Daniels
Laboratory Manager
Lionville Laboratory

jes\i08-013



8/27/12
Date



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Project Number: K3963
Project Manager: Joan Kessner

Reported:
08/27/2012 15:03

Notes and Definitions

U	Analyte included in the analysis, but not detected
*	Value outside QC acceptance criteria
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
Dry	Sample results reported on a dry weight basis
Wet	Sample results reported on a wet weight basis
RPD	Relative Percent Difference
LOD	Limit of Detection (LOD): the minimum estimated concentration of a target analyte that can be detected reliably. Concentrations at the LOD or between the LOD and LOQ are flagged estimated with either a 'J' qualifier or client-specific qualifier.
LOQ	Limit of Quantitation (LOQ): the minimum concentration of a target analyte that can be quantified reliably



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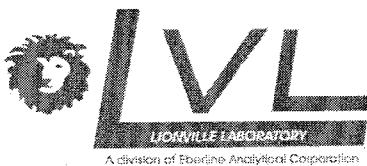
Project: RC-138
Project Number: K3963
Project Manager: Joan Kessner

Reported:
08/27/2012 15:03

Wet Chemistry
Lionville Laboratory

Analyte	Result and Qualifier	LOD	LOQ	Units	Dilution	Batch	Prepared	Analyzed	Method
J1PWW0-A (1208013-01) Water									
Total Phenols	10.0 U	10.0	50.0	ug/L	1	L208229	08/24/2012	08/24/2012	EPA 420.4

000000075



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Project: RC-138
Project Number: K3963
Project Manager: Joan Kessner

Reported:
08/27/2012 15:03

Wet Chemistry - Quality Control
Lionville Laboratory

Analyte	Result and Qualifiers	LOD	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
---------	-----------------------	-----	-----	-------	-------------	---------------	------	-------------	-----	-----------

Batch L208229 - Default Prep GenChem

Blank (L208229-BLK1)		Prepared & Analyzed: 08/24/2012								
Total Phenols	10.0 U	10.0	50.0	ug/L						
LCS (L208229-BS1)										
Total Phenols	80.0	10.0	50.0	ug/L	80.000	100	90-110			
LCS (L208229-BS2)										
Total Phenols	77.1	10.0	50.0	ug/L	80.000	96.4	90-110			
Duplicate (L208229-DUP1)		Source: 1208013-01			Prepared & Analyzed: 08/24/2012					
Total Phenols	10.0 U	10.0	50.0	ug/L	10.0 U					20
Matrix Spike (L208229-MS1)		Source: 1208013-01			Prepared & Analyzed: 08/24/2012					
Total Phenols	78.8	10.0	50.0	ug/L	80.000	10.0 U	98.5	90-110		



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14 August 2012

Joan Kessner
WC-Hanford, Inc.
2620 Fermi Avenue
MSIN H4-21
Richland, WA 99354

Subject: Analytical Data Package

Dear Ms. Kessner:

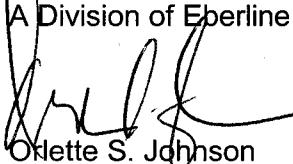
Enclosed are the hard copy analytical reports for the batch number/fraction indicated (marked X) in the following table:

LvLI Batch #	1208003
SDG #	K3963
SAF #	RC-138
Date Received	08/02/12
# Samples	1
Matrix	WATER
Volatiles	
Semivolatiles	
Pest/PCB	
Glycols	
DRO/KRO/GRO	
PAHs	
Herbicides	
Metals	
Inorganics	X

The electronic data deliverable (EDD) has been emailed. If you have any questions, please don't hesitate to contact me at (610) 280-3012.

Sincerely,

Lionville Laboratory
A Division of Eberline Analytical Corporation


Orlette S. Johnson
Project Manager

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of **10** pages.

CHAIN OF CUSTODY

00000002

1208003

Custody Transfer Record/Lab Work RequestPage 1 of 1**FIELD PERSONNEL: COMPLETE ONLY SHADeD AREAS**

A Division of Eberline Analytical Corporation


Client <u>UC Haysford</u>	SAF# <u>RC-138</u>	Refrigerator #		2	2
Est. Final Proj. Sampling Date		#/Type Container	Liquid	<i>1/P</i>	1/P
Project#		Solid			
Project Contact/Phone#		Liquid		<i>J</i>	500
Lionville Laboratory Project Manager <u>D. Johnson</u>	Del <u>SM</u>	Volume	Solid		
QC <u>SLW</u>	TAT <u>21 Days</u>	Preservatives			

Date Rec'd <u>8/21/12</u>	Date Due <u>8/23/12</u>	ANALySES REQUESTED
		→

Matrix CODES:	Lab ID	Client ID/Description	Matrix		Date Collected	Time Collected	Lionville Laboratory Use Only			
			MS	MSD			VOA	BNA	Pest/PCB	Herb
W/Water	01	J1 PWNO	/	/	<i>8/11/12 0815</i>					<i>RSD</i>
WW Waste Water							X			<i>K5</i>
GW Groundwater									X	
WST Waste										
WI Wipe										
SO Solid										
S Soil										
SL Sludge										
SE Sediment										
PC Paint Chips										
O Oil										
NAL Non-Aqueous										
L Leachate										
A Air										
T Tissue										
F Fish										

Special Instructions:

1.

2.

3.

4.

5.

6.

Relinquished by	Received by	Date	Time
<i>Endeavor</i>	<i>Hawkins</i>	<i>8/21/12 0745</i>	

Relinquished by	Received by	Date	Time
<i>Endeavor</i>	<i>Hawkins</i>	<i>8/21/12 0745</i>	

Washington Closure Hanford		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-138-035	Page 1 of 1						
Collector Case 1 - Phillips		Company Contact Tom Edmundson	Telephone No. 509.947.5192	Project Coordinator KESSNER, JH	Price Code 7L Data Turnaround						
Project Designation 300 Area Sanitary Sewer Sampling - Biannual Constituents		Sampling Location 300 Area Sanitary Sewer Semi-Annual		SAF No. RC-138	21 Days						
Ice Chest No. WCH-11-020		Field Logbook No. EL 1518-26	COA RD4MXX2FO0	Method of Shipment FedEx	Bill of Lading/Air Bill No. SHE OSPC						
Shipped To Lionville Laboratory Incorporated		Offsite Property No. A 110 475									
POSSIBLE SAMPLE HAZARDS/REMARKS											
<i>pH < 2</i>											
Special Handling and/or Storage											
<i>Temp < 4 degrees C</i>											
SAMPLE ANALYSIS		Preservation	HNO3 to pH 2	HNO3 to pH 2	HCl to pH 2	Cool 4C	H2SO4 to pH 2	Cool 4C	Cool 4C	Cool 4C	REVIEWED BY
No. of Container(s)	P/G	P/G	Gs*	aG	aG	aG	P/G	P/G	P/G		
Volume	1L	50mL	40mL	500mL	1000mL	1000mL	500mL	500mL	1L	<i>8/1/12</i>	
Sample No.	Matrix *	Sample Date	Sample Time	See item (1) in Special Instructions. [Mercury]	See item (2) in Special Instructions. [Cyanide]	See item (3) in Special Instructions. [Phenolics]	Total Recoverable - 4204 [Total Phenolics]	See item (4) in Special Instructions. [Total suspended solids]	TSS - 2540D [Total Oxygen Demand - 5210 (BOD) - 5210 (Biochemical Oxygen Demand)]		
CHAIN OF POSSESSION		Signature/Print Names		SPECIAL INSTRUCTIONS						Matrix *	
Relinquished By/Removed From <i>Case 1 Phillips Case 1 - 8-1-12</i>	Date/Time 8/1/2012 0830	Received By/Stored In <i>Sin Sexton</i>	Date/Time 8/1/12	(1) Metals & Trace Elements by ICP - 200.7 [Antimony, Arsenic, Beryllium, Cadmium, Chromium, Copper, Lead, Molybdenum, Nickel, Selenium, Silver, Thallium, Zinc] (2) Purgeables - 624 [1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1-Dichloroethane, 1,1-Dichloroethene, 1,1-Dichloropropane, 2-Chloroethyl vinyl ether, Acrolein, Acrylonitrile, Benzene, Bromodichloromethane, Bromoform, Bromonethane, Carbon tetrachloride, Chlorobenzene, Chloroethane, Chlorotoluene, Chloromethane, cis-1,3-Dichloropropene, Dichloroethylene, trans-1,3-Dichloropropene, Trichloroethene, Toluene, trans-1,2-Dibromoethane, Ethylbenzene, Methylchloride, Tetrachloroethylene, Vinyl chloride] (3) Base/Neutrals and Acids - 625 [1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 1,2-Diphenylhydrazine, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 2,4,6-Trichlorophenol, 2,4-Dichlorophenol, 2,4-Dinitrophenol, 2,4-Dinitrophenol, 2,6-Dinitrotoluene, 2-Chlorophenol, 2-Nitrophenol, 3,3'-Dichlorobenzidine, 4,6-Dinitro-2-methylphenol, 4-Bromophenylphenyl ether, 4-Chloro-3-methylphenol, 4-Chlorophenylphenyl ether, 4-Nitrophenol, Acenaphthene, Acenaphthylene, Anthracene, Benzidine, Benzo(a)anthracene, Benzo(a)pyrene,					Reviewed By <i>J. W. D. Ken</i>		
LABORATORY SECTION	Received By	Title								Matrix *	
FINAL SAMPLE DISPOSITION	Disposal Method	Date/Time								Disposed By	
WCH-EE-011											

0000000004

Lionville Laboratory
SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: *WC Hafford*
Project/SAF/SOW/Release #: *PC-138*

Date: *8/2/12*

LvL Batch #: *1208003*

Sample Custodian: *Victor Heeney*

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier <i>FedEx</i>	Airbill # <i>7986 8792 8070</i>	
2. Custody Seals on coolers or shipping containers intact, signed & dated?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> No Seals
3. Outside of coolers or shipping containers are free from damage?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Comments:
4. All expected paperwork received (coc & other client specific information) sealed in plastic bag and easily accessible?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
5. Samples received cooled or ambient?	Temp <i>31°</i> °C	Cooler # <i>WCH-15-020</i>	
How was the temperature taken?	<input checked="" type="checkbox"/> IR	<input type="checkbox"/> Temp. Blank	<input type="checkbox"/> Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
6. Custody seals on sample containers intact, signed and dated?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> No Seals
7. COC (Client & LvL) signed & dated?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
8. Sample containers are intact?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
9. All samples on COC received? All samples received on COC?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
10. All sample label information matches COC?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
11. Samples properly preserved? (If #5 is no, then this is no.)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
12. Samples received within hold times? Short holds taken to wet lab?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
13. VOA, TOC, TOX free of headspace?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
14. QC stickers placed on bottles designated by client?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
15. Shipment meets LvL Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
16. Project Manager contacted concerning any discrepancies? Person Contacted _____	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
	Date _____		



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Project: RC-138
Project Number: K3963
Project Manager: Joan Kessner

Reported:
08/09/2012 14:53

Analytical Report for Wet Chemistry

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1PWW0	1208003-01	Water	08/01/2012 08:15	08/02/2012 09:45



A division of Eberline Analytical Corporation

264 Welsh Pool Road
Exton, Pennsylvania 19341
Phone (610) 280-3000
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Case Narrative

Client: WC-HANFORD RC-138 K3963
LVL#: 1208003

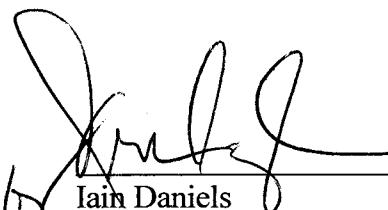
Date Received: 08-02-12

INORGANIC NARRATIVE

1. This narrative covers the analyses of 1 water sample.
2. The sample were prepared and analyzed in accordance with the methods indicated on the data summary report.

Lionville Lab (LvL) is NELAP accredited by the State of Pennsylvania. For a complete list of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager. LvL certifies that all test results meet the requirements of NELAC with any exception noted in the following statements.

3. Sample holding times as required by the method and/or contract were met.
4. The results presented in this report are derived from samples that met LvL's sample acceptance policy.
5. The method blanks were within the method criteria.
6. The Laboratory Control Samples (LCS) were within the laboratory control limits.
7. The replicate analyses were within the 20% Relative Percent Difference (RPD) control limit.
8. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard copy package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

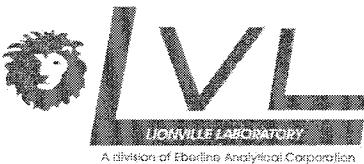


Iain Daniels
Laboratory Manager
Lionville Laboratory

njp\i08-003



8/14/12
Date



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Project: RC-138
Project Number: K3963
Project Manager: Joan Kessner

Reported:
08/09/2012 14:53

Notes and Definitions

U	Analyte included in the analysis, but not detected
*	Value outside QC acceptance criteria
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
Dry	Sample results reported on a dry weight basis
Wet	Sample results reported on a wet weight basis
RPD	Relative Percent Difference
LOD	Limit of Detection (LOD): the minimum estimated concentration of a target analyte that can be detected reliably. Concentrations at the LOD or between the LOD and LOQ are flagged estimated with either a 'J' qualifier or client-specific qualifier.
LOQ	Limit of Quantitation (LOQ): the minimum concentration of a target analyte that can be quantified reliably

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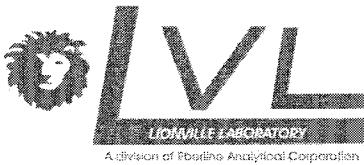
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Project: RC-138
Project Number: K3963
Project Manager: Joan Kessner

Reported:
08/09/2012 14:53

Wet Chemistry
Lionville Laboratory

Analyte	Result and Qualifier	LOD	LOQ	Units	Dilution	Batch	Prepared	Analyzed	Method
J1PWW0 (1208003-01) Water									
Total Suspended Solids	58000	5000	10000	ug/L	1	L208040	08/06/2012	08/06/2012	SM 2540D
Biochemical Oxygen Demand	34000	1000	2000	ug/L	1	L208017	08/02/2012	08/08/2012	SM 5210B



264 Welsh Pool Road
Exton, PA 19341
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2620 Fermi Avenue
Richland WA, 99354

Project: RC-138
Project Number: K3963
Project Manager: Joan Kessner

Reported:
08/09/2012 14:53

Wet Chemistry - Quality Control
Lionville Laboratory

Analyte	Result and Qualifiers	LOD	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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Batch L208017 - Default Prep GenChem

Blank (L208017-BLK1)										
Biochemical Oxygen Demand	1000	U	1000	2000	ug/L					
<hr/>										
LCS (L208017-BS1)										
Biochemical Oxygen Demand	180000		1000	2000	ug/L	198000	90.8	54-119		
<hr/>										
Duplicate (L208017-DUP2)										
Biochemical Oxygen Demand	35000		1000	2000	ug/L	34000			3.42	20

Batch L208040 - Default Prep GenChem

Blank (L208040-BLK1)										
Total Suspended Solids	5000	U	5000	10000	ug/L					
<hr/>										
LCS (L208040-BS1)										
Total Suspended Solids	86000		5000	10000	ug/L	100000	86.0	80-120		
<hr/>										
LCS (L208040-BS2)										
Total Suspended Solids	95000		5000	10000	ug/L	100000	95.0	80-120		
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Duplicate (L208040-DUP1)										
Total Suspended Solids	58000		5000	10000	ug/L	58000			0.00	20